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ABSTRACT

This curriculum guide, developed during a pilot project at three sites in Ohio during the 1973-75 period, is designed for the teacher implementing a pre-postsecondary program in health careers for eleventh and twelfth grade students. The guide contains an introduction, a section on program philosophy and assumptions, elements of a pre-postsecondary program (including block-time scheduling, simulated activities, field experiences, career guidance, and individualization), plus content outlines and class activities. Activities (intended to take two years) are outlined across the areas of mathematics, science (anatomy, physiology, chemistry, nutrition, physics, psychology, sociology, and technical writing), career investigation, and personal development in a core format designed to enable the student to see the applicability of the topics and concepts and to see the holistic nature of knowledge. The content outline correlates an activity number with a specific topic in one of the major activity areas. (TA)

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PRE-POSTSECONDARY PROGRAM

A HEALTH CAREERS CURRICULUM

BEST COPY AVAILABLE

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INTRODUCTION

OVERVIEW

This curriculum is designed for the teacher implementing a Pre-Postsecondary Program in Engineering Careers. During the 1973-74 and 1974-75 school years, the Ohio State Department of Education, Division of Vocational Education, conducted a pilot program at three sites in the state (Akron Public Schools, Great Oaks Joint Vocational School District, and Owens Technical College). This curriculum was written during the summer of 1975 and reflects the insights gained in the pilot experience.

The Pre-Postsecondary Program is part of the Career Education thrust in the State of Ohio for 11th and 12th grades. It is intended to be the culmination of a K-12 Career Education Program. At the end of the 10th grade, those students who have chosen to continue their formal education after high school (be that a university, college, community college, technical college, or junior college) enter the Pre-Postsecondary Program. Those students who plan on entering employment right after high school would attend a vocational program.

The 11th grade students entering the program will choose one of four career clusters. These four clusters are Business Administration Careers, Engineering Careers, Health Careers, and Social Science Careers. The clusters provide the student with a variety of options within his or her interest area besides their specific career goal. As an example, often persons entering the health careers field plan on being a doctor. As they get more information about themselves and the medical field in high school and college, they may find that being a doctor was not their best choice. The careers cluster approach will have provided them with vocational options they might not have considered.

It should be noted that this program is not vocational. The career interests of the student are used as a means of better preparing them in the academic areas and assisting them in their career choice. It is intended that this approach assist the student to be more successful in his or her further education.

There are several parts to this curriculum packet. Besides this introductory section, there is a section on philosophy and assumptions, elements of a Pre-Postsecondary Program, field experiences, plus content outlines and class activities. It is the hope of the authors that these materials will be of assistance to a teacher implementing a Pre-Postsecondary Program.

PHILOSOPHY AND ASSUMPTIONS

The Pre-Postsecondary Program centers around two philosophical assumptions. The first is that one of the public school's responsibilities is to help students make good career decisions. Over one fourth of a person's life is spent in working, and a life can be richer and fuller if a career is fulfilling. The second philosophical assumption is that students learn best if their involvement in the learning process is maximized. Students learn best if they are able to apply the knowledge being taught to a laboratory or field experience; they learn best if the knowledge being taught is related to their goals in life (in this case, their career goals).

These assumptions led to the following general aims of the program:

1. The student shall be able to qualify for entrance into a postsecondary educational institution of his or her chosen field.
2. The student will arrive at a better understanding of himself or herself in the following areas:
   a. Aptitudes
   b. Interests
   c. Motivation
   d. Economic, Social, and Personal Values
3. The student shall be able to make a realistic career decision.
4. The student shall be able to plan, analyze, and evaluate his or her educational, occupational, and personal goals and activities.
5. The student shall be able to demonstrate meaningful realtionships between academic knowledge and his or her environment.

COMPONENTS OF THE PRE-POSTSECONDARY PROGRAM

Probably the most unique aspect of the program is in the methodologies utilized. There are several aspects to this dimension.

1. Block Time Scheduling. The Pre-Postsecondary Program should be centered around a three to four and a half hour block of time. The large time block allows the use of experiential methodologies (in-class and out-of-class) significant teacher-pupil interaction, and integration of academic knowledge with the experiential methodologies.

2. Simulated Activities. Within the block of time each student should perform activities that simulate their professional area of interest. These simulated activities become the center of academic subjects using a Core concept. This curriculum consists of these activities along with the academic knowledge that should be integrated with them.

3. Field Experiences. Field experiences are an important component of the Pre-Postsecondary Program, and there is a special section devoted to them later in the introduction.

4. Career Guidance. A major goal of the program is to assist the students in making career and educational choices. The simulated activities and the field experiences obviously give the students the opportunity to know what people in their career area do and also provides the students with other closely related career options. The teacher-pupil interaction provided by the block time is also a significant factor. Vocational interest surveys, value clarification exercises, and career exploration research reports should also be used.

5. Individualization. As much as possible, the Pre-Postsecondary Program should be directed toward individual needs, interests, and aptitudes. Allowing the students to choose the career cluster of interest to them is a start in

the direction of individualization, and the block of time gives the teacher time to get to know the student so he or she can better meet the needs, interests and abilities of the students.

FIELD EXPERIENCES

Field experiences are an important ingredient to the Pre-Postsecondary Program. All of the pilot programs did include community work for the pupils, and both teachers and students considered them significant in the success of their programs. Based on the experiences of the pilot programs, the following recommendations are included:

1. Nature of Field Experiences. During the first half of the junior year, student visitations should be made to many different kinds of places employing people in the broad career field. This is to assist the student in seeing the many options available in their chosen area. This can be done as a class, on a small group basis, or as individuals. In the second half of the junior year, the visitations should be narrowed to the individual interests, needs, and capabilities of the students. It may be that during this time the student will visit several places that employ people in his or her chosen career or in closely related careers. Naturally these visits would be on a small group or individual basis. The field experiences in the senior year should consist of the student actually working one day a week in his or her chosen area. Ideally, the student should work in three different "jobs" during the year. It is important that the student be able to experientially explore more than one field but, on the other hand, spend several weeks in one place to get some competence and to get a feel for the routine involved in their chosen career.

2. Student Accountability. It is necessary to make the student accountable in their field experiences work for two reasons. The first is to provide the student with maximum benefit. The second reason is that the procurement of locations to place students is much easier when those working at the locations realize that this work will be taken seriously (i.e., good quality of work and regular attendance) by the students. In the pilot programs, the staff members

seeking positions for thestudents in the senior year found some resistance in the beginning, but after the students had started their work, in almost all cases, the people supervising and working with the students wanted more people assigned to their location. Student accountability was an important factor.

3. Debriefing. Within a day or two after the field experience there should be some form of debriefing. At least three topics should be discussed. First, it should be determined if there were any problems in arrangements. Secondly, there should be discussion about what was observed so that other students could benefit from the experience. The third area of discussion in the debriefing session should deal with how the students related the experience to their personal lives. This should center on interests, capabilities, values, and feelings. Books on value clarification and confluent education could be used by the teacher for help with this aspect of the program.

4. Making the arrangements. Making the arrangements for the field experiences is a time consuming job, and staffing needs to be planned with this factor in mind. Although a field experience coordinator was hired in one of the pilot programs, it was felt by those involved that the teacher is the best person to make the arrangements and should be given time for this task. The reasons for selecting the teacher is that he or she should know the students best, is best able to relate academic subjects to the field experiences, and is better able to know on a day to day basis what is happening in the field because of the contact with the students.

It was found that there were several sources of field experiences. Professional societies and local institutions are rather obvious sources. An advisory committee can be of help and should be selected partially because of the assistance it can gi e in this area. Parents, other family members, and

friends of the student were also valuable in locating field experiences.

The arrangements for the visitations in the senior year need to be made well in advance. The experiences from the past two years would indicate that these arrangements are best made during the summer before the senior year, and that the teacher(s) should be given an extended contract to do this work.

5. Transportation. Transportation was a recurring problem in all of the programs and needs to be thought through in advance. Ideally, transportation, especially when the field experiences are on an individual or small group basis, should be left up to the students. Car pools with parents or students driving could be formed or students could drive their own cars. Vans were used by two of the pilot programs but do present time problems if the individual or small group field experiences are too spread out geographically.

Two other factors that need consideration are the safety of the students and personal liability with field trips. Because the students and parents will also become liable in the field experience program if they transport other students, it is important that a study be made of the applicable law and that all involved understand the extent of their liability and protection. An insurance policy which can be obtained at a minimal cost per person would be a benefit to all involved.

THE CURRICULUM

GETTING READY TO TEACH

The most important step in the preparation of a lesson is for the teacher to make specific plans. Prepared materials are not intended to take the place of this step. Within the planning step, the preparation of instructional objectives is of major significance. The teacher should then make a time outline of what is going to be done in the class session. Obviously this outline should be flexible. The last step in the preparation is to make a complete list of materials and equipment needed and to procure these items before the class session.

In this planning step, there are several factors that should be kept in mind. The first is that the activity is the center of any lesson; it is the means of motivating the students and the means of assisting the students to apply the academic knowledge. Many different strategies may be used to teach the academic material (e.g., discussion, lecture, group work, reading assignment), but these should always be used as they can be related to the central activity. Also there will probably be more than one activity being done at a time by a class. Some of the activities can be completed in a short time, others take several weeks.

Although evaluation is not considered in this guide, it is a necessary step in the lesson preparation. It is imperative that evaluation procedures be logically consistant with the instructional objectives. Also, the evaluation should be viewed as primarily diagnostic for both the teacher and student. For the teacher evaluation is a means of diagnosing the success of a lesson or a series of lessons. For the student, the evaluation is a means of determining strengths and of determining areas that require further work. It is not the primary purpose of evaluation to produce grades.

INTRODUCTION TO THE CURRICULUM FORMAT

There are several parts to this section. First, there are content outlines. In the column to the right of the topics and concepts are numbers designating which activities include the topic or concept. The content outline is followed by the activity charts. At the top of the chart is the objective for that activity. Below the objective are five columns. In the far left column is the activity. The other four columns include the concepts and knowledge to be taught with that activity.

It is intended that the concepts be taught in conjunction with the activities. The teacher will have to make the decision as to whether a particular concept needs to be taught before the activity is done, during the work on the activity, or after the activity has been completed. Some concerns the teacher should have in making this decision are, (1) how necessary the knowledge is in starting the activity, (2) how much the student already knows, and (3) how important the motivation provided by the activity is.

Any methodology, no matter how good, if it becomes routine, will lose its "punch". Therefore it becomes necessary to use variety and imagination in the teaching of the academic concepts and topics. Buzz groups, class discussion, films, short research projects, class presentations are among the many teaching strategies that can be used.

Among the reasons for putting the material in the Core format is to enable the student to see the applicability of the topics and concepts, and to see the holistic nature of knowledge. These emphases should be kept in mind by the teacher in planning and should be pointed out to the students.

The activities are intended to take two years. Although the author has put the activities in a suggested order, it is assumed that the teacher will have the prerogative to change the order to fit his or her particular situation and class.

Pre-Postsecondary Program in Health Career Education

I. Broad Program Objectives

A. The student will gain the knowledge and the skills necessary for the admission into a post-secondary educational institution which offers the health program of his of her choice.

B. The student will become familiar with his or her vocational interests, aptitudes, motivations and value system.

C. The student will become familiar with the academic, the physical, the emotional and the attitudinal requirements of health career personnel.

D. The student will become aware of the varied and various institutions which offer post-secondary health education.

E. The student will be able to analyze, interpret, evaluate and apply the total experience in the program in making a realistic career decision.

F. The student will be able to relate the performance of the various health career professionals to the health care needs of society.

II. Specific objectives (competencies) of the Health Careers Pre-Post Secondary Program

A. The student will be able to compare the characteristics of successful health professionals in each career with his or her own characteristics and will be able to interpret and apply this data in making his or her career decision.

1. The student will investigate each of the health careers which require training beyond the secondary educational level and will be able to identify the following:

a. The academic requirements for entrance into a post-secondary educational institution which offers preparation for each career.

b. The aptitude, attitude and psychomotor skills necessary for a successful experience in each career.

c. The interest patterns of people who are successful in each career.

d. The employment opportunities in each career.

e. The varied and various institutions which offer post-secondary health education.

2. The student will be able to demonstrate through teacher planned strategies an awareness of him or herself by being able to identity:

a. His or her current and long-lasting interests.

b. His or her special skills.

c. His or her special aptitudes.

d. His or her ability to empathize with others.

e. His or her ability to work cooperatively with others.

f. His or her ability to persevere.

B. The student will understand the important facts and principles in the content areas common to and interrelated with the health professions.

C. The student will demonstrate through classroom activities and field placement experiences the ability to perform at a high level of proficiency in the following areas necessary in all of the health careers:

1. Accuracy in observation and communication.

2. Accuracy in interpretation of data.

3. Accuracy in differentiation of similarities.

4. Accuracy in following directions.

5. Effective participation as a team member.

6. Effective participation as a leader.

D. The student will study the health needs of his or her community, will report the results and will compare these needs with the number and types of health professionals in the community.

E. The student will meet the entrance requirements of a post-secondary educational institution in his or her chosen health career by satisfactorily completion of the courses required.

III. Content of the Pre-post Secondary Health Careers Program

Although the content which the student will experience within the program should be integrated and inter-related as much as it is possible, three distinct areas can be identified. It seems important to identify the areas for the purpose of the organization of instructional activities, the organization of time allotment, the organization of the instructional staff and for clarification for those who plan to implement the program. It should be understood that each area is an integral part of the program and cannot be sacrificed or ignored.

The areas of content are:

A. The academic content.

B. The career investigation content.

C. The personal development content.

A. The academic content.
Each student will acquire competencies in the following areas:

1. The basic concepts, generalizations and skills of chemistry.

2. The basic concepts, generalizations and skills of Physics.

3. The basic concepts, generalizations and skills of Physiology.

4. The basic concepts, generalizations and skills of Nutrition.

5. The concepts of Mathematics which include:

   a. The basic concepts, generalizations and skills of Algebra II, Geometry, Trigonometry, Statistics, and introductory calculus.

   b. The mathematics concepts should be individualized according to the particular needs of the student.

6. The concepts, generalizations and skills of the social sciences which include:

   a. Psychology

   b. Sociology

7. The concepts, generalizations and skills of communication which include:

a. Written.

b. Oral.

c. Non-verbal.

B. The Career Investigation content.

1. Each student will, through teacher-student planned activities, observe, record and report the preparation for and the work of the following health Professionals:

a. Animal care technologists.

b. Dental hygienists.

c. Dentists.

d. Dietitian.

e. Hospital administrator.

f. Inhalation therapist or respiratory therapist.

g. Medical assistants and/or technicians.

h. Medical illustrator.

i. Medical technologists.

j. Medical records librarians.

k. Medical social worker.

l. Microbiologist.

m. Music Therapists.

n. Nuclear medical technologist.

o. Occupational therapists.

p. Optometrist.

q. Pharmacists.

r. Pharmacist technicians.

s. Physical therapists.

t. Physicians.

u. Physicians assistants.

v. Podiatrist.

w. Practical nurse.

x. Public health educator.

y. Radiologic technologists.

z. Recreational therapists.

a_1 Registered Nurses.

b_2 Veterinarians.

2. Each student will, through teacher arranged placements experience on the job training as a volunteer in one of two health careers of his or her choice.

   a. Each experience choice will be the result of the student's prior investigation of the work of the health professionals.

   b. Each experience choice will reflect the student's narrowing of health career inquiry.

   c. Each experience will be of such duration to realistically represent the work of the health professional no less than a full day, once a week for approximately ten weeks is highly recommended.

   d. Each experience will be evaluated by the students in a seminar type session each week to enable each to clarify his or her discoveries of both the career and personal reactions to the work experience. This group activity enables the students to experience many health careers vicariously.

   e. Each student will be evaluated regarding his or her attendance and performance to encourage maximum participation and benefit from each career placement.

C. The Personal Development Content.

Each student will, through teacher planned strategies, be able to identify, interpret and report in oral or written form the following:

1. The results of his or her:

   a. Achievement tests.

   b. Aptitude tests.

   c. Interest tests.

2. The record of his or her:

   a. Academic progress.

   b. Hobbies and special interests.

   c. Physical history.

   d. Social history.

3. The record of his or her:

   a. Work experience.

   b. Volunteer experience.

4. A personal evaluation of his or her:

   a. Strengths.

   b. Weaknesses.

   c. Special growth needs.

IV. Instructional activities or teacher planned strategies.

The activities which the individual with the ultimate responsibility for implementing the program plans, should meet the following criteria:

A. They should be planned to insure that the student has an opportunity to achieve one or preferably several of the specific program objectives.

B. They should be within the resources of the specific community offering the program.

C. They should be individualized to meet the students particular needs and should assure that each individual is able to achieve a minimal standard of proficiency in the academic content.

D. They should be flexible to meet changing societal needs.

E. They should be integrated and interrelated with the health careers as much as is possible to enable the student to experience maximal career exposure.

Pre-Requisites of the Pre-Postsecondary Health Careers Program.

If the students entering the program are to accomplish the objectives planned for them, certain assumptions must be made. These assumptions are:

A. The student shall have expressed a desire to investigate the health professions as a possible career choice. (No student should elect, nor should he be placed into the program for want of other educational interests).

B. The student shall have earned credit in the courses which are pre-requisites of the program. These pre-requisites are:

1. Two units in College-preparatory English.

2. Two units in College-preparatory Mathematics. (Algebra I, and either Algebra II or Geometry).

3. Two units in College-preparatory Science (Physical/or Natural Science and Biology).

4. One unit of Physical Education and Health.

5. One unit of Social Sciences.

6. Two units of a foreign language are highly recommended due to the entrance requirements of many pre-professional post-secondary educational institutions.

C. The students shall give evidence of the ability to perform at a college-preparatory level by being in the upper one-half of his or her class and by having a minimum of an accumulated grade point average of a 2.5 (2.00 = C).

D. The student shall give evidence of inner-directed behavioral controls by presenting a record of high attendance in grades 9 and 10 and of the ability to follow reasonable school regulations (no record of repeated disciplinary problems).

There are abviously exceptions to the aboye recommended pre-requisites, but for the student to have a better assurance of having a successful experience, these recommendations should be the NORM.

Content Outline

Anatomy and Physiology	Activity Number
1. The cell	1,4,5,6,7,8,9.10,12,18,36,46,54
2. Cell specialization - Tissues	1,3,5,6,7,8,9,10,12,13,19,34,36,43,61
3. The Skeletal system	61,71,74
a. Bones	2,10,12,13,14,15,16,17,18,19,20
b. Joints	10,12,13,14,15,16,19,20
c. Tendons	10,12,13,14,16,19,21
d. Ligaments	10,12,13,14,16,19,21
4. The muscular system	22,61,71
a. Striated muscle	10,12,16,18,19,20,74
b. Smooth muscle	10,52,66
c. Mechanism and chemistry of muscle contraction	16,18,19,20,22,69,74
d. Effects of exercise on the volume of muscle tissue	16,19,20,69,71,73,74
5. The nervous system	33,40,47,49,54,61,62,65,71
a. Central and peripheral system	5,13,14,16,18,19,22,23,29,32
b. Spinal cord and nerves	10,13,14,18,21,23,73,74
c. The brain and cranial nerves	10,21,22,23,25,26,29,30,44,54
d. Electroencephalography	21,23
e. Autonomic nervous system	5,21,22,33
6. The eye	
a. Structure, movement and protection	19,22,23,24,25,26,27,28,29,49,61,74
b. Physics of vision	26,73
c. Visual Acuity	25,27,28,65
d. Defects of vision	24,26,27,28,29,33,54,65,73
7. The ear	
a. Structure and function	29,30,31,32,61
b. Physics of sound	13,19,29,30,31,32
c. Balance	23,32,33,54,73,74
d. Auditory defects	30,31,32,33,73
8. The digestive system	5,74,52,58,59,61,66,69
a. The mouth	5,47,52
Mastication	5,47,52
Deglutition	30,47,52,61
b. The stomach	52,66
Peristalsis	52,66
Vomiting	52,54,66
Psychosomatic influences	52,58,61,66
c. The liver	10,41,42,52,54,66
Bile formation	41,42,52,54
Jaundice	41,42,52,54
Glycogen formation	35,41,42,52,54,57
Urea formation	35,41,42,52,54
d. The gall bladder	52,60,61

Anatomy and Physiology (continued)	Activity Number
Storage of bile	52
Formation of stones	52
e. The pancreas	10,52,66
Enzymes	7,41,52,60
Insulin formation	41,52,57,60
9. The digestive system	
f. The intestines	10,52,61
Absorptionof nutrients	36,39,52,54,56,57,59,60,66
Water absorption	34,41,52,59
Bacterial action	5,52
Feces formation	5,52
Constipation	52,53,73
g. Defects of digestive system	52,53,66,73
10. The respiratory system	40,43,44,45,46,47,48,52,54,61,69
a. The mechanics of breathing	19,20,43,44,45,47,74
b. The lungs and lung capacity	10,20,43,44,45,46,66
c. Nervous and chemical control of breathing	4,43,44,45,49
d. Atmospheric and pressure changes (effects of)	20,29,43,45,46
e. Gas exchange	6.20,39,43,45,47
f. Artificial respiration	43
g. Phonations: Characteristics of human sounds	29,30,49
11. The circulatory system	3,20,37,38,40,41,42,52,61,62
a. The heart, veins and arteries	4,10,20,37,39,42,43,44,45,46
b. Pulmonary circulation	3,4,7,12,37,39,42
c. Systemic circulation	3,4,7,12,37,39,42
d. Blood, Plasma and Blood Clotting	5,6,7,10,17,19,36,38,41,42,43,44
e. Immunology	4,6,38,42,58
f. Physiological shock	14,15,51
g. Acid-base equalibrium	3,6,7,34,35,36,41,51
h. Electrocardiograms	37
i. Blood Pressure	14,37,42,49,65,74
j. Pulse and control of heart rate	14,37,42,65,74
k. The spleen	17,39,42
l. The lymphatic system	4,39,42,66
m. Heart attacks	37,39,42
n. Other defects of circulatory system	3.14,35,36,42,55,66,73
12. The skin	
a. Structure and function	5,10,11,29,50,51,61,69
b. Sensory receptors	29,49,50,51,
c. Temperature regulation	20,49,50,51,52,65
d. Excretion	20,49,50,51,52,65
e. Diseases of	50,51,54,66,73
13. The urinary system	40,52,61
a. The kidneys	4,6,10,34,35,54,58,65,69

Anatomy and Physiology (continued)	Activity Number
b. The ureters, bladder, and urethra	34,35,65,66
c. Factors influencing kidney function	4,6,19,35,39,41,65
d. Composition of urine	5,34,35,39,52,54,58,65
e. Urinary catheterization	35
14. The endocrine system	
a. Hormone production and action	4,7,35,41,60,61,62,63,66
b. Specific function of each gland	
Pituitary	4,7,12,13,34,35,60,62,63,66
Thyroid	7,12,60,66
Parathyroids	7,12,60,66
Adrenals	7,7,27,31,34,35,60,66
Islets of Langerhans	12,13,15,35,49,60,66
Pineal body	52,60,66
Thymus	62,60,66,38,39
Gonads	9,27,60,62,63,66
15. The reproductive system	
a. Female reproduction	9,27,60,61,62,63,66,72
b. Male reproduction	9,60,61,62
c. Fertilization - Sterilization	1,9,60,61,62
d. Cleavage and primary germ layer formation	1,9,60,62,63
e. Implantation	1,60,62,63
f. Intra uterine growth	1,4,12,17,22,36,38,46,60,62,63,65
g. Birth	62,63,65,72
16. Death and Dying	37,46,66
17. Genetics	1,2,9,10,12,27,28,38,72
a. Genes, nucleic acids, and coding characteristics of D.N.A. and R.N.A.	1,2,9,10,12,27,28,38,72
b. Sex determinations and sex-linkage	9,27,28,72
d. Inheritance of blood types, Rh factor and abnormal hemoglobins	9,10,27,28,38,42,72
e. Mutations	2,9,17,27,28,46,60,63,72
18. Microbiology	
a. Body defenses against disease	5,10,11,54,72
Anatomical	
Skin	5,10,11,50
Hair	5,10
Mucous membraines	5,10
Glands	5,10
Body fluids	10,41
Physiological	
Immunology	3,4,5,10,35,51
Chemical reactions	4,6,36,38,41,42,66,72
b. Pathogenic Organisms	5,6,10,11,35,50,51
c. Sterilization techniques	11,15,38,51,65,72
d. Disease preventions	4,10,11,14,17.43,46,48,50,51,56,66,72,73,76

Chemistry	Activity Number
1. The science of Chemistry	1
a. Chemical and physical change	3.14,17,21,22,44,45,49,69
b. Methods of science	3,5,9,11,45,48,55,62,70
c. Matter and Energy	4,12,20,21,37,40,55
d. Measurements on chemistry	3,12,38,40,48,55,56
2. Matter and its changes	
a. Composition of matter	2,8,11,38,40,42,43,53,56,59,69
b. Changes in matter	3,27,38,40,43,52,53,59,69
3. Atomic structure	7.9.40,43,56,57,69
4. The Periodic Law	28.40,43,56,63
5. Chemical Bonds	8,12,28,43,48,62,63,65
6. Chemical Compositions	2,4,5,12,28,34,36,38,41,48,52,53,55,56,57,59,69
7. Chemical Equations	3,7,18,28,34,36,41,48,55,63
8. The Gas Laws	19,20,39,40,43,44,45,46,47,48
9. Molecular composition of gases	19,20,38,40,43,44,45,46,47,48
10. Liquids	3,6,7,24,33,35,36,37,40
11. Solids	2,30,35,43,47,48
12. Water	3,6,24,35,40,43
13. The solution process	3,6,7,8,34,35,36,41,42,56
14. Ionization	3,18,34,35,41,48,51,55,58
15. Acids, Bases, and Salts	3,6,28,34,35,41,48,51,55,58
16. Acid-Base titration and pH	3,34,35,36,41,49,51,58
17. Carbon and its oxides	2,19,28,43,44,46,48,49,54,57,59
18. Hydrocarbons	12,43,46,48,65,69
19. Hydrocarbon Substitution Products	43,46,48,65,69
20. Reaction energy and reaction kinetics	8,18,19,20,21,22,40,49,52,55,60,62,69
21. Chemical Equilibrium	3,7,19,28,34,35,36,41,48,55,60,62,63
22. Oxidation-Reduction reactions	18,19,40,43,44,45,48,52,54,55,62
23. Elements of Period Three	5,6,7,18,19,41
24. The metal of Group I	33,41

Chemistry (continued)	Activity Number
a. Lithium	33,41
b. Sodium	5,6,7
c. Potassium	12,15
d. Rubidium, Cesium and Francium	33,41
e. Spectroscopy	27,28
25. The metals of Group II	12,18,41
a. Beryllium	
b. Magnesium	12,18
c. Calcium	12,15
d. Strontium and barium	5,9,43
26. The transition metals	12,15,41
a. The iron family	12,15,41
b. The copper faimily	12,15,41
c. The zinc subgroup	12,15,41
27. Aluminum and the metalloids	29
a. Aluminum	29
b. Boron	43,48
c. Silicon	43
d. Arsenic	41
e. Antimony	
28. Nitrogen and its compounds	5,9,43,44,48,65,69
a. Nitrogen	5,9,43.44,48,65,69
b. Ammonia and Ammonia Compounds	34,65
c. Nitric acid	34,65
29. Sulfur and its compounds	48
30. The halogen family	24,33,41
a. Fluorine	12,15,41
b. Chlorine	6,7,41
c. Bromine	41
d. Iodine	52,60
31. Radioactivity	
a. Natural radioactivity	2,5,9,17,36,48,60,66
b. Artificial radioactivity	15,17,36,48,60,66

Nutrition	Activity Number
1. The nutrients	19,20,34,35,39,41,52,53,55,58,59
2. Carbohydrates	3,7,13,18,19,35,41,52,53,57,59
3. Proteins and Amino Acids	8,12,13,18,19,28,34,41,52,53,59
4. Fats	18,19,52,53,59
5. Vitamins	
a. A	24,25,41,52,53,55,59
b. B	12,13,15,41,52,53,55,59
c. E	27,41,50,52,53,55,59
d. Ascorbic Acid (C)	5,12,15,41,52,53,55,56,59
e. K	38,41,52,53,55,59
f. Thiamine	9,41,52,53,55,59
g. Ribonflavin	9,41,52,53,55,59
h. Niacin	3,41,52,53,55,59
i. Pyridoxin (B_6)	3,41,52,53,55,59
j. Pantothenic Acid	41,52,53,55,59
k. Folic Acid (Folacin)	41,52,53,55,59
l. Vitamin B_{12}	12,15,41,52,53,55,59
m. Biotin	41,52,53,55,59
n. Choline	41,52,53,55,59
6. Minerals	
a. Calcium	12,15,18,19,41,52,53,59
b. Phosphorous	5,8,12,15,18,19,41,52,53,59
c. Potassium	5,9,41,52,53,59
d. Sulfur	5,9,48,52,53,59
e. Sodium	4,6,7,24,33,41,52,53,59
f. Chlorine	6,7,13,24,33,41,52,53,59
g. Magnesium	18,41,52,53,59
h. Iron	12,15,41,52,53,59
i. Maganese	12,15,41,52,53,59
j. Copper	12,15,41,52,53,59
k. Iodine	5,9,12,15,41,52,53,59,60
l. Cobalt	5,9,12,41,52,53,59
m. Zinc	12,41,52,53,59
n. Selenium	41,52,53,59
o. Molybdenum	41,52,53,59
p. Fluorine	12,15,41,52,53,59
7. Water	3,4,6,36,41,52,53,59
8. Utilization of nutrients	15,18,19,20,24,33,36,39,41,52,53,55,59,60
9. Digestion	20,33,36,52,53,55,57,58,59
10. Energy Metabolism	18,19,35,52,53,54,55,57,59
11. Nutritional needs of the human body system	12,13,18,19,20,41,52,53,54,55,59,63

Nutrition (continued)	Activity Number
12. Food habits	2,20,35,50,52,53,55,59,65,69,72
13. Weight Control	19,20,35,36,37,53,54,59,65,72
14. Body nutrition needs at various life stages	
a. Infants	9,12,53,55,63,65,69,72
b. Children	12,53,69,72
c. Youth	12,20,35,53,69,72
d. Adults	12,20,53,65,69,72
e. Pregnancy and lactation	4,9,12,20,65,69
f. Senority	12,13,20,53,69,73,75
15. Effects of dietary deficiences	2,12,15,20,22,24,27,35,50,53,54,55,56,59,60,63
16. Foods as sources of nutrients	2,15,20,22,24,27,35,50,53,54,55,56,59,60,63
17. Improving the quality of the human diet	11,20,50,53,55,56,59,60,72,73
18. Present and future food supplies	2,11,17,48,53,59

Physics	Activity Number
1. Measurement	2,20,22,23,26,33,40,41,42,43,44,45,46,52,55,72
2. Speed	19,22,23,26,29,39,40,45,52,71
3. Acceleration (Velocity)	19,33,39,40,52
4. Force - Law of Inertia Newton's F = Ma Law	4,15,37,39,40,43,45,46,47,52
5. Weight	14,16,42,52,55
6. Vectors - Velocity Vectors	17,40
7. Magnets	43,49
8. Earth's gravitational field	37
9. Static Electricity	43
10. Quantitative Law of electrified bodies	29,40,41
11. Electricity	3,18,21,29,32,49,72
12. Ohm's Law - resistance	18,21,31,49
13. Current	3,21,31,49
14. Voltage	18,21,31,49
15. Actual Force	4,15,16,18,37,40,42,44,45,46,47,69
16. Average Force	15,16,37,40,42,44,45,46,47,69
17. Momentum	23,29,33,71
18. Work - conservation of energy	18,19,37
19. Watt	26,49
20. Heat	
a. Temperature	18,19,29,40,48,49,52,53,54,72
b. Conservation of heat	18,19,29,40,48,49,52,53,54,72
21. Energy	
a. Kinetic	3,8,9,13,18,19,20,49,52,53,54,74
b. Potential	8,9,13,18,19,22,52,53,54,74
22. Motion	3,4,6,7,8,13,19,22,29,31,39,41,42,52,71,74
23. Fluids	3,6,7,8,36,37,39,41,42,52
24. Kinetic Molecular Theory	4,7.19,38,40,41,52

Physics (continued)	Activity Number
25. Kelvin Temperature Scale	18,19,34,40,46,48,52,54
26. Ideal Gas Law	20,39,40,45,46,47,48
27. Electrical Energy An Electron	3,18,21,41,48
28. A Coulomb-Avogadro's Number A Gram	41,46
29. Light Particles	17,24,25,27,34,48,69
30. Bending of light	1,24,25,26,27,34,69,74
31. Light waves	17,24,25,26,27,34,69,74
32. Electromagnetic waves	5,29,32,69
33. Einstein's theory of Relativity	
34. Atomic Theories	
a. Bohr's	48,57
b. de Broglie's	48,57
35. The Modern Laser	1,51
36. Emission of Radiation	2,15,36,43,48,60
37. The International system of measurement (Metric)	2,5,8,26,40,41,44,48,55
38. Uncertainties and Errors in Measurement	2,8,19,23,26,31,35,40,41,48,55,56,60
39. Scientific notation	3,19,23,31,34.35,40,41,48,55,56,60
40. Unit analysis	12,19,35,41,48,52,55,56
41. Exponents and proportion	6.16,31,35,40,41,48,55,56

Psychology	Activity Number
1. Human Development	
a. Heredity	1,9,28,36,38,60,63,65,67,72
b. Physical maturation	2,4,5,9,12,16,17.24.28,30,38,55,63,67,72,76
c. Perceptual development	21,23,26,27,28,51,57.72
d. Language development	23,30,67,72
e. Concept and cognitive development	23,67,72
f. Development of intelligence	23,67.72
g. Development of social behavior	23,27,51,67,72,76,78
2. The healthy personality	
a. Personality formation	27,31,50,51,67,72,75,78
b. Personality theories	50,51,67,72,75,78
c. Personality measurement	27,31,67,72,75,78
3. Motivation	
a. Physiological	20,21,27,31,32,44,49,53,54,55,67,74,75
b. Emotional	20,27,31,32,49,54,67,74,75,78
c. Social	20,31,32,54,67,74,75,78
4. Learning	
a. Pavlovian classical conditioning	21,22,23,55,67,74
b. Instrumental learning (operant)	23,55,67,74
c. Discrimination learning	23,30,33,67
d. Motor skill learning	19,21,22,23,30,33,67,69,74
e. Verbal learning	23,30,54,67,74
f. Conception learning	23,67,74
g. Problem solving	23,29,33,51,67,74
h. Creativity	19,23,30,67,74
5. Attitudes - Sociality	
a. Formation, management, and change	27,29,31,32,46,54,65,67,69,70,78
b. Attention getting mechanisms	27,54,67,69,70,74,75,78
c. Persuasion	36,67,69,70,74,75,78
d. Structure and dynamics of groups	32,54,67,69,70,75,76,78
6. Individuality	
a. Psychological tests	67,72
measurement of achievement	67,72
measurement of aptitude	67,72
measurement of intelligence	67,72
measurement of interests	67,72
measurement of creativity	67,72
b. Validity of measurements	31,67,70,72
7. Adjustment	
a. Frustrations	20,29,49,50,51,54,65,67,70,71,78
b. Conflict	20,29,46,49,50,51,54,65,70,71,78
c. Defense mechanisms	20,49,50,51,54,65,70,71,78
d. Withdrawal	20,29,50,51,54,65,70,71,78
e. Fears and anxiety	14,16,20,29,36,49,50,51,54,65,70,71,78

Psychology (continued)	Activity Number
8. Behavior Disorders	
a. Neuroses	49,54,75,78
b. Psychoses	49,75,78
c. Disorders of organic origin	21,30,31,33,55,78
d. Character disorders	30,49,65,78
9. Overview of types of Psychologists and the work that they do	27,49,50,51,76

Sociology	Activity Number
1. The individual	
a. Biological man - evolution	1,2,8,24,31,72,78
b. Development of personality	12,16,31,50,77,78
c. The socialization process	11,22,31,45,49,67,69.72,77,78
d. Conforming behavior	20,22,27,31,65,67,69,72,75,77,78
e. Autonomous behavior	20,29,31,67,69,72,75,77,78
2. The family	
a. Socialization of the child	11,60,67,70,72,77,78
b. Family disorganization	54,60,62,64,67,70,72,73,75,77,78
c. Personal freedom	62,67,70,72,77,78
3. Organizations	
a. Dynamics of organizations	15,37,38,42,43,44,45,46,61,70,73,74,72,76
b. bureaucracy	5,15,32,37,42,43,44,51,56,58,59,60,63,76
c. Democracy	32,42,43,44,51,58,59,76
d. Voluntary Associations	14,29,31,37,38,39,42,43,44,46,60,62,63,64,64, 71,76
4. Social category systems	
a. Sex role differentiation	62,64,67,69,72,74,77,78
b. Age - changes in age roles	20,31,32,50,53,67,69,72,73,75,77,78
5. Social stratifications	
a. Preindustrial societies	2,59,75,76,78
b. Industrial societies	
Differentiation	32,43,46,58,59,75,76,78
Stratification	5,53,69,77,78
Social mobility	53,67,69,78
Relative deprivation	9,29,55,54,69,73,75,78
Alienation	20,29,53,54,69,73,75,78
Scarcity - abundance	9,53,54,55,56,59,73,75,78
6. Ethnic groups	
a. Stratification	12,69,72,77,78
b. Intergroup relations	67,69,72,77,78
c. Conflict and cooperation	14,32,69,72,77,78
d. Prejudice and discrimination	67,69,72,77,78
e. Cultural pluralism and integration	67,69,72,77,78
f. Subordinate groups	12,69.72.74.78
g. Dominant groups	12,69,72,77,78
h. Achievement syndrome	12,67,72,77,78
7. The economic system	
a. Industrial revolution	11,53,55,56,72,73,78
b. The culture of poverty	11,53,55,56,72,73,78
c. Economic development	43,54,55,56,58,59,78
8. The political system	
a. The nature of power	43,58,77,78
b. Power in society	43,58,77,78
9. The community	

Sociology (continued)	Activity Number
a. Urbanized society	32,43,44,51,53,54,60,69,71,76,77
b. Community eclipse	53,54,55,60,69,72,73,76,77,78
c. Community development	11,41,46,61,67,70,79,71,72,73,76,77
10. The effect of education, religion and science on the society	11,14,16,17,18,36,43,49,60,76,77,78
11, Change	
a. Collective behavior	2,55,69,70,77,78
b. Social movements	2,55,62,70,76,77,78
c. Theories of change	2,55,70,77,78

Communication	Activity Number
1. Written	
a. Scientifice note taking	2,4,7,11,12,19,22,23,26,37,43,45,58,60,69
b. Expository writing	2,19,20,42,51,71
c. Technical writing	1,4,8,11,12,22,23,24,25,31,34,37,39,43,45 60,61,63,65,72
d. Research reporting	17,22,23,27,28,31,32,33,34,41,42,43,44,50 52,53,55,56,63,64,65,70,72,75,77
e. Development of medical vocabulary	1,5,19,28,32,34,36,37,39,41,43,44,52,53,57 58,60,61,63,65,72,77,78
2. Oral	
a. Formal presentations	4,11,14,16,30,42,46,47,49,57,65,77,78
b. Discussion techniques	36,46,75,77,78
c. Questioning techniques	15,31,32,49,50,75,77,78
d. Debating	36,75,77,78
3. Non-verbal	
a. Listening	15,31,32,50,69,75,77,78
b. Interpretation of body language	14,32,44,47,49,69,75,77,78

Topics in: Career Investigation Area

I. Overview of all careers in health which require postsecondary preparation.

A. Educational Requirements
1. Entrance requirements of preparatory institutions.
2. Entrance requirements of entry-level of career.
3. Need for up-grading education to remain in career.

B. Financial Implications
1. Cash of career preparations.
2. Reward of career employment.

C. Career Opportunities
1. Opportunities for acceptance into preparatory institutions.
2. Opportunities for employment.
3. Opportunities for upward mobility.

D. Personal requirements of career professionals
1. Physical requirements.
2. Ethical requirements.
3. Emotional requirements.
4. Social requirements.
5. Special skill requirements
6. Interest patterns of successful professionals.

II. In depth career experience in one or two areas.

A. Observation.

B. Field Experience.

Topics in: Personal Development Area

I. Development of self-awareness

A. Investigate ability in relation to career requirements
   1. Results of ability tests.
   2. Results of achievement tests.
   3. Results of school performance in academic subjects.

B. Investigate special aptitudes in relation to career requirements
   1. Results of special aptitude tests.
   2. Record of school experience requiring special skills.
   3. Record of personal activities requiring special skills.

C. Investigate personal interest patterns in relation to interest patterns of successful career professionals
   1. Results of interest tests.
   2. Record of personal interest patterns as demonstrated by school activities, hobbies, recreation activities, work activities, and social activities.
   3. Record of volunteer activities
   4. Record of employment activities.

D. Investigate physical body development in relation to career requirements
   1. Record of personal health.
   2. Assessment of physical strength and endurance record.
   3. Record of physical activities.

E. Investigate value system in relation to career requirements
   1. Record of school attendance.
   2. Assessments of personal character traits.
      a. Honesty
      b. Helpfulness
      c. Courageousness
      d. Cheerfulness
   3. Consider choice of friends.

F. Investigate personal role preference in social groups
   1. Record of leadership experience.
   2. Record of group cooperation experiences.
   3. Record of ability to follow directions.
   4. Record of empathetic experience with children, peers, adults, and aging member of community.
   5. Record of task perserverance.

II. Integration of self-awareness with needs of career professionals

A. Group dynamics experiences

B. Consideration of personal investigation and realistic comparison with career requirements

C. Guidance of career counselor

D. Choice of career and career alternatives

Suggested Sequence of Activities:

I. Academic Content

A. Junior Year
1. Communications (English III, College Preparatory).
2. Mathematics-Individualized-(Algebra II, Geometry, Trigonometry).
3. Chemistry.
4. Health Science (First one-half of anatomy, physiology and nutrition).
5. Psychology.

B. Senior Year
1. Communications (Enginsh IV, College Preparatory).
2. Mathematics-Individualized-(Trigonometry, Advanced Algebra, or Introductory Calculus).
3. Physics.
4. Health Science (Second one-half of anatomy and physiology and microbiology).
5. Sociology.

II. Career Investigations Content

A. Junior Year
1. Personal Research.
2. Speakers.
   a. Career professional
   b. College or technical school admissions counselors
   c. Vicarious career experience through audio-visual materials
   d. Group field visits
   e. Individual field visits

B. Senior Year
1. Career experience.
   a. Rotating field placement experience in a minimum of two career areas
   b. Weekly career experience seminar with career counselor

III. Personal Development Content

A. Junior Year
1. Group dynamics with career counselor-exploratory level.
2. Individual conferences with career counselor-exploratory level.

B. Senior Year
1. Group dynamics with career counselor-intensive level.
2. Individual conference with career counselor-intensive level.

OBJECTIVE: The student shall be able to demonstrate meaningful relationships between academic knowledge and his or her health field.

1 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Draw a diagram which will demonstrate the inter-relationships of the sciences in the health fields.		Physiology Biochemistry Biophysics Mathematics Psychology Sociology Morphology Anatomy Cytology Histology Genetics Embryology Pathology	Physiologist Health Educator Historical Development of Health Fields	Consideration of the depth and variability of the health field

OBJECTIVE: The student will understand the stages of the evolution of man.

2 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Construct a chart showing the evolution of man, including a time scale and the divisions of the Pleistocene Epoch.	Graphing Logarithmic Measurement Balancing equations Calculating Communications Notation Written Clarification	Chemistry Carbon-dating Composition of Bone Scientific Research Methods Anatomy and Physiology Skeletal Formation Genetics Psychology Heredity and Environmental Effects of Human Development Sociology Biological Man-Evolution Theories of Change	Pathologist Anthropologist Psychologist Social Worker	Development of awareness of evolutionary effects upon individual physical development

OBJECTIVE: The student will understand the process of osmosis and diffusion.

4 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Construct an apparatus for the demonstration of OSMOSIS-Diffusion. Example: Fill a bowl with egg and water or fill a thistle tube with 6% solution of sucrose. Cover opening with dialyzing membrane. Tie with thread-Use vaseline to form water-proof seal. Invert into a dish of water. Mark height of sugar solution in tube. Observe over a period of time -- 24 hours to 48 hours, etc. Make a graph of height of solution in tube, plotting height against time. Record results. Explain results.	Measurement Graphing Solving Equations Communication Written Technical Writing Note Taking Oral Formal Presentation	Chemistry Diffusion Molecular Movement Solutions Physics Pressure-Force Permeability of Membranes Anatomy and Physiology Cellular Function Kidney Function Dialysis Respiration Body Fluid Balance Electrolyte Balance Fetal Circulation Lymphatic System Endocrine System Immunology	Medical Laboratory Technologist Hemotologist Urologist Pharmacologist Endocrinologist Immunologist	Development of Accuracy in: Observation Interpretation of Data Following of Directions Recording Development of skills in the manipulation of equipment.

OBJECTIVE: The student will be able to analyze a physical specimen.

5 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Examine, sketch and identify with a microscope: A sample of human hair A sample of blood A sample of saliva A sample of cheek scraping A sample of skin scraping A sample of urine A sample of feces Report Results.	Graphing Measurement of Diameter πr^2 Metric System International System of Measurement Communication Scientific Note Taking Development of Medical Vocabulary	Anatomy and Physiology Cellular Construction Integumentary System Digestive System Urinary System Microbiology Scientific Technology Use of Microscope Identifications of Pathogens Chemistry Scientific Methods Physics Optics Sociology Organizations Bureaucracy Health Department	Cytologist Histologist Pathologist Medical Laboratory Technologist Hemotologist Sanitarian Microbiologist Veterinarian	Development of skills and accuracy in: Observation Differentiation of Similarities Interpretation of Data Following Directions Recording Psycho-Motor Skills

OBJECTIVE: The student will observe the exchange of materials across the cell membrane and properly record the results.

6 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Investigate and record the results of the addition of distilled water, normal saline, and a 10% saline solution to a drop of blood.	Measurement Percentage Ratio and Proportion Communication Scientific Notation	Anatomy and Physiology Cellular Structure Osmosis Circulatory System Body Fluid Balance Chemistry Solutions Mixtures Atom-Molecules Water Physics Fluids Motion	Cytologist Hemotologist Infusion Therapist Pharmacologist Medical Laboratory Technologist Pathologist Registered Nurse Dialysis Specialist Urologist	Development of skills in: Accuracy Observation Differentiation Recording Data

OBJECTIVE: The student will determine the chemical compatibility of fluids.

7 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Determine the compatibility of the addition of 5% glucose solution to an I.V. infusion of normal saline solution. Record Results.	Measurement Ratio and Proportion Percentage Communication Scientific Notation	Anatomy and Physiology Cellular Structure Osmosis Circulatory System Electrolyte Balance Chemistry Solutions Mixtures Atoms-Molecules Water Ionization Physics Fluids Motion	Cytologist Hemotologist Infusion Therapist Pharmacologist Medical Laboratory Technologist Pathologist Registered Nurse	Development of skills in: Accuracy Observation Differentiation Recording Data Identify Need of Caution in Medical Science

OBJECTIVE: The student will examine and compare characteristics of the structure of the cell.

8 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Examine an ameba culture microscopically. Record the results.	Measurement Communication Notation Technical Writing	Anatomy and Physiology Cellular Structure Physics Measurement Light-Optics Chemistry Scientific Method Polyphasic Colloids	Cytologist Medical Laboratory Technologist Pathologist	Development of skills in: Observation Differentiation Recording Data

OBJECTIVE: The student will observe mitosis and will properly record the results.

9 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Prepare, stain, and examine the tip of the root of an onion. Record the results.	Measurement Communication Notation Technical Writing	Anatomy and Physiology Mitosis Reproduction Chemistry Preparation of Stains and Solutions Scientific Method Nutrition Nutrition Needs of Cellular Activity Psychology Heredity Physical Maturation Sociology Relative Deprivation Scarcity-Abundance	Cytologist Pathologist Medical Laboratory Technologist	Development of skills in: Accuracy Observation Differentiation Recording Data Manipulation

OBJECTIVE: The student will identify common pathogens and body tissues.

10 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Examine microscopically a minimum of ten self prepared tissue slides and 100 commercially prepared bacteria and tissue slides. Make a drawing of each observation and label appropriately.	Measurement Communication Scientific Notation Technical Writing	Anatomy and Physiology Cellular Structure Tissues and Membranes Epioheliat Muscle Connective Adipose Nervous Mucous Membrane Porous Membrane Synivial Membrane Cutaneous Membrane	Cytologist Histologist Pathologist Microbiologist Public Health Disease Investigator Medical Laboratory Technologist	Development of skills in: Accuracy Observation Differentiation Recording Data Identification of need for patience and perserverance in careers in investigating medicine

OBJECTIVE: The student will identify the organisms which are common to his or her environment.

11 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Grow cultures of samples taken from 3 different areas of the school. Record and report the results.	Measurement Timing Graphing Communication Scientific Notation Technical Writing Formal Presentation	Microbiology Pathogenic Organisms Identification of Microorganisms Sterile Techniques Disease Prevention Nutrition Nutrient needs of Organisms Food Preservation Chemistry Scientific Method Mixtures Compounds Anatomy and Physiology Skin Sociology Community Sanitation Needs	Medical Laboratory Technologist Urologist Microbiologist Sanitarian Public Health Nurse Health Educator Dietician	Development of skills in: Observation Interpretation Differentiation Recording Reporting Skills in Psycho-Motor Development

OBJECTIVE: The student will demonstrate a knowledge of the structure and function of bone tissue.

12 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Analyze a long thin uncooked bone. Record the results.	Solving and balancing equations in mathematics Communications Scientific Notation Technical Writing	Chemistry Chemical Composition of Skeletal Tissue Solving for Unknown Anatomy and Physiology Cellular Structure of Bone Function of Skeletal Tissue Skeletal Circulation Nutrition Nutrient Needs of Skeletal Tissue Microbiology Microscopic Study of Tissue Psychology Human Development Affects of Physical Maturation Sociology The Individual Development of Personality	Pathologist Cytologist Histologist Orthopedist Physical Therapist Dietitian Psychologist Sociologist Veterinarian	Development of skills in: Observation Differentiation Following Directions Psycho-Motor Skills Identification of Emotional Reaction to Examination of Tissue

OBJECTIVE:

12-Page Two ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
		Sociology Ethnic Groups Stratification Subordinate Dominant		

OBJECTIVE: The student will identify the structure and function of the joints of the body.

13 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Identify and explain in writing the functions of the joints of the human body.	Geometry-Planes Circles Arcs Communication Technical Writing	Anatomy and Physiology Skeletal System Muscular System Physics Motion Principles of Levers Nutrition Nutritional Needs of Body Tissue	Orthopedics Physician Physical Therapists Occupational Therapists Recreational Therapists Music Therapists	Development of skills in accuracy of: Observation Recording Data Differentiation Following Directions

OBJECTIVE: The student will demonstrate proper first aid procedures.

14 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Explain and demonstrate the correct first aid procedure for a victim suspected of having a broken back.	Geometry-Planes Angles Communication Formal Presentation Interpretation of Body Language	Anatomy and Physiology Skeletal System Nervous System First aid techniques for shock, moving the injured Physics Weight Microbiology Prevention of Infections Sociology Laws Governing Personal Liability Psychology Dependency Needs of the Ill Patient	Physician Orthopedists Intensive Care Nurses Pharmacist Health Educator Emergency Care Technologists	Development of: Awareness of Personal Limitations Astute Observational Skills Ability to Exercise Cautious Judgment Ability to Direct Others

OBJECTIVE: The student will be able to relate the performance of specific health career professionals to a health care need of society.

15 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
List the health personnel and the health facilities which would be needed by a student who has fallen down the stairs and broken his leg.	Geometric Planes Communication Technical Writing Verbal Questioning Techniques Non-Verbal Listening	Anatomy and Physiology Skeletal System Physiological Shock Physics Force Pressure Levers X-Rays Nutrition Calcium and Phosphorus Rich Foods Chemistry Calcium Phosphorus Trace Minerals Microbiology Sterilization Techniques Sociology Community Resources Organizations	School Nurse Physician-Orthopedist Radiologist X-Ray Technician Dietitian Professional Nurse Physical Therapist Laboratory Technologist Emergency Care Technician	Development of skills of accuracy in: Observation Interviewing Reporting

OBJECTIVE: The student will identify corrective procedures for defects in body mechanics.

16 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Demonstrate and explain the correct procedure for improving the following: 1. Fallen arch of the foot. 2. Rounded shoulders 3. Lordosis 4. Abdominal sag	Geometry Planes Arcs Angles Ratio-Proportion Communication Formal Presentations	Anatomy and Physiology Skeletal System Muscular System Nervous System Physics Tractions Forces Pressures Levers Sociology Development of Personality Psychology Fears and Anxiety	Physical Therapist Recreational Therapist Orthopedist Podiatrist Music Therapist Occupational Therapist Health Educator	Development of skills in: Perception Interpretation Projection of Self Leadership

OBJECTIVE: The student will examine the effect of radiation on bone growth and development.

17 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Summarize the current research on the effects of radiation on bone growth and development.	Vectors Geometric Planes Communication Research Reporting	Chemistry Radio Active Elements Physics X-Rays Vectors Gamma Rays Nutrition Effect of Contamination of Food Supplies with Radio Active Materials Anatomy and Physiology Skeletal System Circulation-Blood Formation Genetics-Mutation Psychology Heredity Physical Development Sociology Effect of Science on Society	Radiologist Geneticists Orthopedist Dietitian	Development of skills in: Accuracy of Data Retrieval Interpretation

OBJECTIVE: The student will demonstrate accurately the action of a muscle under different conditions.

18 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Graphically represent muscle action using a kymograph and a nerve-muscle preparation of a frog's gastroenemius muscle.	Graphing Measurement Radius Balancing of Equations	Anatomy and Physiology Skeletal System Muscular System Cellular Activity Nervous System Nutrition Nutrient Needs of Muscle Tissue Protein Synthesis Calcium Phosphorus Magnesium Utilization of Glucose Chemistry Electro-Chemical Reactions Protein Synthesis Action of Calcium, Phosphorus, Magnesium High Energy Phosphate Bonds of ATP Conversions of Liver Glycogen to Glucose and the Utilization of Glucose	Orthopedist Physical Therapist Occupational Therapist Recreation Therapist Veterinarians	Development of Accuracy in: Observation Recording Data Communication Psycho-Motor Skills Knowledge of Physical Performance

OBJECTIVE:

18-Page Two ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
		Physics Electrical Energy Kinetic Energy Force Conservation of Energy Motion Heat (Calories) Temperature		

OBJECTIVE: The student will identify the muscles and joints needed for participation in physical activities.

19 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Analyze and describe in writing the muscular-skeletal functions needed to participate in your favorite sport. Example: Pitching a ball. Teach this activity to another person.	Measurement Radius Geometric Planes Extrapolation Communication Scientific Notation Expository writing	Chemistry Electro-chemical Reactions Oxygen Exchange Protein Synthesis Action of Calcium, Phosphorus, Magnesium High Energy Phosphate Bonds of ATP Conversions of Liver Glycogen to Glucose and the Utilization of Glucose Physics Electrical Energy Kinetic Energy Force Conservation of Energy Motion Heat (Calories) Temperature Speed Psychology Motor Skill Learning Nutrition Nutrients Made of Body Tissue	Health Educator Occupational Therapist Orthopedist Physical Education Instructor Recreational Therapist Biochemist (Medical) Rehabilitation Specialist	Development of Accuracy in: Analysis Communication Differentiation of Difference Recording Data Knowledge of Physical Performance Psycho-Motor Skills Leadership Skills

OBJECTIVE:

19-Page Two ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
		Anatomy and Physiology Skeletal System Muscular System Effect of Fatigue on Muscles Cellular Activity Nervous System Reflex Arc Effects of Training on Learning Respiration-Oxygen Needed to Sustain Activity		

OBJECTIVE: The student will identify the varying physical and dietary needs of human beings.

20 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Develop and describe in written form an exercise and diet regimen for: 1. A teenage boy with a broken leg. 2. A three month pregnant mother. 3. A middle-aged male with emphysema. 4. A middle-aged female 20% overweight. 5. A 70 year old home-bound underweight female.	Measurement Percentage Ratio-Proportion	<u>Anatomy and Physiology</u> Skeletal System Bone Growth and Repair Muscular System Muscles of the Extremitus Muscles of the Abdomen and Pelvic Floor Effect of Fatigue on Muscles Reproductive System Respiratory System <u>Psychology and Sociology</u> Psychological Needs of Differing Age Groups <u>Chemistry-Physics</u> Chemical Energy Kinetic Energy Gas Loins Oxygen-CO_2 Exchange Negative and Positive Pressure	Dietitian Inhalation Therapist Medical Social Worker Occupational Therapist Physical Therapist Physicians Physician's Assistant Public Health Educator Physical Educator Physical Education Teacher Recreation Therapist Registered Nurse	Development of accuracy in: Organizational Skills Observation Reporting Communication Knowledge of Human Needs in Each Area Academic Knowledge Needed in Each Area Knowledge of Inter-relationships of All Fields in Meeting Human Needs.

OBJECTIVE:

20-Page Two ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
		Nutrition Dietary Needs of Humans with: 1. Growth and Repair Needs 2. Weight Reduction Requirements 3. Nutritional Needs of Fetal Development 4. Controlling Weight in Maternity 5. Nutritional Needs of Aged		

OBJECTIVE: The student will identify the neurons involved in reflex actions.

21 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Draw a diagram showing the path followed by the nerve impulse in bringing about a knee-jerk.	Lines Arcs Communication Technical Writing Interpretation of Body Language	Psychology Neural Pathways Learning Theories Conditioning Anatomy and Physiology Nervous System Reflex Arcs Physics Electricity Chemistry Chemical Energy	Neurologists General Practice Physicians Physical Therapists Occupational Therapists Recreation Therapists	Development of Accuracy in: Psycho-Motor Skills Observation Reporting

OBJECTIVE: The student will demonstrate reflex actions and reaction time.

22

ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Design, conduct, and report the results of an experiment which will demonstrate: 1. A conditional reflex 2. Reaction time 3. Effect of discrimination on reaction time	Arcs Lines Radius Communication Scientific Note Taking Technical Writing Research Reporting	Psychology Learning Theory of Conditioning Motor Skill Learning Anatomy and Physiology Nervous System Reflex Arcs Physics Motion Speed Electrical Energy Chemistry Chemical Energy Sociology The Socialization Process Conforming Behavior	Neurologists Ophthalmologist Physical Therapist Safety Engineer Public Health Officer	Development of Accuracy in: Organization of Activities Observation Recording Communication Ability to Give Directions Ability to Work Effectively with Others

OBJECTIVE: The student will relate methods of learning to physical functions.

23 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Devise an experiment to test a learning theory. Test it and report the results.	Statistics Probability Measurement Communication Scientific Note Taking Technical Writing Research Reporting	Nutrition Effects of Dietary Deficiencies Psychology Learning Classical Operant Discrimination Motor Skill Verbal Conception Problem Solving Creativity Anatomy and Physiology Nervous System Reflex Action Neural Pathways Muscular System Chemistry Chemical Changes Scientific Method Physics Measurement Speed Uncertainties and Errors in Measurement	Pediatricians Social Workers Animal Care Technicians Veterinarians Psychologists	Development of Self Appraisal Techniques Development of Accuracy in: Observation Interpretation Differentiation Recording Reporting

OBJECTIVE: The student will identify the structure of the organ of vision.

24 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Dissect a sheep's eye. Record your discoveries.	Measurement Communication Technical Writing	Nutrition Effects of Dietary Deficiencies Vitamin A Psychology Physical Maturation Sociology Biological Man-Evolution Anatomy and Physiology Structure of the Eye Function of Visual Process Physics Light Waves Bonding of Light Chemistry Liquids Salts	Ophthalmologist Optometrist Optician Pathologist Health Educator	Development of Accuracy in: Observation Discrimination Interpretation Recording Psycho-Motor Skills

OBJECTIVE: The student will locate the retinal area with no receptors.

25 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Discover the blind spot in your visual field. Record the significance of your findings.	Angles Rectangles Communication Technical Writing	Anotomy and Physiology Structure of the eye Physiology of Vision Nervous System Physics Light Bending of Light	Ophthalmologist Optometrist Optician Health Educator	Developing problem solving techniques and accuracy in reporting

OBJECTIVE: The student will demonstrate image formation.

26 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Construct a shoe box camera (pin hole) and observe the image of a clear incandescent bulb or a burning candle formed in the screen. Record results.	Geometric Planes Distance Measurement Radius of a Circle First Degree Equations With One Variable Trigonometry Communication Scientific Note Taking	Anatomy and Physiology The Eye The Nervous System Retina Physics Light-Rays Relationship between light rays and distance of object Photometry Measurement Psychology Perceptual Development	Optometrist Ophtalmologist Opticians School Nurses Screening Vision Health Educator	Skills in: Observation Eye-Hand Coordination Precision Recording

OBJECTIVE: The student will list emotional and physical effects of color on human behavior.

27 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Survey a minimum of 100 persons noting the reaction of each to the colors red, white, blue, green and yellow. Using the results, recommend the color to use to decorate: 1. A waiting room in a children's clinic. 2. A medical records library. 3. A hospital operating room.	Fundamentals Percentiles Probability Ratio and Proportion Square Root Communication Research Reporting	Anatomy and Physiology Vision Color Nervous System Retina Physics Optics Color Spectrum Chemistry Chemical Changes in Cones Psychology Emotional Reaction to Colors Individual Differences Sociology Conforming Behavior	Medical Researcher Ophthalmologist Optometrist Optician Hospital Administrator Psychologist Medical Social Worker Health Educator	Development of accuracy in: Observation Recording Reporting Application Interpretation Development of understanding of human variation and responses.

OBJECTIVE: The student will determine the genetic probability for normal nision.

28 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Construct a family tree to determne the genes for vision: 1. Normal Hyperopia Myopia 2. Color Perception	Solve Percentage Solve Ratio-Proportion Solve Square Root Solve Second Degree Equations With Two Variables Work With Law of Probability Communication Technical Writing Development of Medical Vocabulary	Genetics Hardy-Winberg Mendilian Ratio Anatomy and Physiology Structure of Eye Function of Eye Defects of Vision Chemistry Nucleic Acid D.N.A. Physics Light Color Optics Pshchology Human Development Physical Maturation Heredity Perceptual Development	Examples of work of career professionals: Optometrist Physician (Ophthalmologists) Physiologist Geneticist School Nurse Health Educator	Growth in Self-Awareness Accuracy in: Observation Communication Interpretations of Data Following Directions

OBJECTIVE: The student will list the physical, emotional and social benefits of vision.

29 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTICATION	PERSONAL DEVELOPMENT
Spend one day completely blind folded. Describe your special physical needs, your feelings and your interpretation of the reaction of others to you.	Estimation Measurement	Anatomy and Physiology Defects of Vision Protection of Vision Balance Function of the Ear The Skin Sensory Receptors Chemistry Aluminum and the Metalloids Physics Speed Motion Electricity Communication Listening Questioning Psychology Learning-Problem Solving Attitude-Socially Adjustment Frustrations Conflict Withdrawal Fears and Anxiety Sociology Autonomous Behavior Organizations-Institutes for the blind Alienation	Optometrists Ophthalmologists Opticians Health Aid Engineers Medical Social Worker Occupational Therapist Physical Therapist Recreational Therapist Rehabilitation Specialists	Development of: Observation Empathetic Understanding of Problems of the Handicapped

OBJECTIVE: The student will demonstrate a knowledge of sound waves.

30

ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Using an oscilloscope demonstrate the sound wave patterns of: A musical instrument A tuning fork Normal Speech	Measurement Metric System Graphing Communication Oral Presentation	Anatomy and Physiology Structure and Function of the Ear Structure and Function of the Vocal Cords Phonations Nervous System Auditory Nerves Physics Measurement Sound Waves Psychology Physical Maturation Language Development Learning Discrimation Motor Skill Concept Creativity	Otologist Speech and Hearing Therapist Music Therapist Learning Disability Therapist	Development of Accuracy in: Observation Differentiation Interpretation of Data Recording Communication

OBJECTIVE: The student will determine the normal range of auditory acuity for differing age groups.

31A ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Devise an experiment to test the hearing of: Children Adults Senior Citizens Record and report the results.	Measurement Metric System Graphing Statistics Communication Technical Reporting Research Reporting	Anatomy and Physiology Structure and Function of the Ear Effect of Aging on the Ability to Receive Sound Stimulation Physics Sound Waves Conduction of Sound Waves Measurement Psychology Individual Difference Sociology Needs of Different Age Groups	Otologist Speech and Hearing Therapist Pediatrician Geriatric Specialist Medical Social Worker	Development of Emphthy Toward Different Age Groups Development of Accuracy in: Observation Interpretation Recording Communication

OBJECTIVE: The student will compare exposure to various decibels of sound to auditory acuity and properly record the results.

31B ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Using an audiometer, measure the hearing ability of a minimum of 100 teenagers. Let your sample include: 1. Rock Band Players 2. Those who own and frequently use stereophonic equipment 3. Those who do not frequently listen to music Record and report results.	Measurement Graphing Statistics Probability Square Root Ratio-Proportion Percentage	Anatomy and Physiology Structure and Function of Ear Nervous System Effect of Decibels of Sound on Acuity Endocrine System Adrinal Glands Physics Sound Waves Conduction of Sound Waves Measurement Power Communication Research Reporting Development of Medical Vocabulary Questioning Techniques Listening Psychology Individual Difference Effect of Sound Level on Emotions	Otologist Speech and Hearing Therapist School Nurse Pediatrician Music Therapist	Development of Understanding of the Effects of External Stimuli Upon Body Processes Development of Accuracy in: Observation Recording Communication Interpretation

OBJECTIVE:

31B-Page Two ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
		Sociology Agencies Needed to Measure and Protest Against Sound Pollution The Individual Behavior		

OBJECTIVE: The student will determine the sound pollution level of various human environments.

32 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Using appropriate measuring instruments, determine the sound level of four different areas near your school. Record and report the results. Example: 1. A classroom in business education 2. A machine shop class 3. An elementary playground at recess 4. A local industrial shop	Measurement Graphing Percentage Statistics Ratio-Proportion	Anatomy and Physiology Structure and Function of Ear Nervous System Effect of Decibels of Sound on Efficiency Physics Sound Waves Conduction of Sound Waves Measurement Psychology Effect of Sound on Worker Performance Individual Differences Emotional Reaction to Levels of Sound Sociology Agencies & Personnel Necessary for Sound Pollution Protection Conflict and Cooperation	Otologist Industrial Health and Safety Specialist (R.N. and Physician) Speech and Hearing Therapist Public Health Officer Environmental Health Specialists	Development of Understanding of the Effects of External Stimuli on Body Processes. Development of Accuracy in: Observation Recording Reporting Communication Interpretation

OBJECTIVE: The student will demonstrate the interrelationship of the senses of sight and balance.

33 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Blindfold a classmate, turn him around 10 times, and request that he walk a straight line. Record and report the results.	Measurement Graphing Statistics Percentage Ratio-Proportion Communication Research Reporting	Anatomy and Physiology Structure and Function of Semi-Circular Canals Kenisthetic Sense Physics Equilibrium Measurement Momentum Nutrition Relationship of Balance and Food Retention Chemistry Sodium Chloride Balance Psychology Discrimination Learning Motor Skill Learning Problem Solving Disorders of Organic Origin	Otologist Physical Therapist General Practician Health Educator Pharmacologist	Development of Ability to Work Closely With Others. Accuracy in: Observation Reporting Recording Communication Interpretation

OBJECTIVE: The student will observe the structure of the kidney and will examine the tissue and identify the parts.

34

ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
1. Dissect a sheep kidney, make a sketch and label parts. 2. Examine kidney tissue microscopically. Report findings in writing.	Measurement Communication Technical Writing Research Reporting Development of Medical Vocabulary	Anatomy and Physiology Urinary System Circulation (Renal) Electrolyte Regulation Endocrine System Water Balance Cellular Specialization Chemistry Acid-Base Balance Chemical Equilibrium Solubility Electrolytic Reactions Nutrition Dietary Control of Diabetes Mellitus Insulin Balance Physics Optics Light Rays	Pathologist Urologist Medical Laboratory Technologist Registered Nurse Dietician Histologist Medical Illustrator	Development of Accuracy in: Observation Differentiation Interpretation of Data Recording Reporting Skills in Psycho-Motor Control Ability to Touch and Handle Tissue and Body fluids

115

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OBJECTIVE: The student will examine urine specimens and will determine the incidence of Diabetes Mellitus in Adolesence.

35

ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Test a sample of urine of 100 fellow students for the presence of sugar. Record and report results.	Measurement Balancing Chemical Equations Statistics Percentage Ratio and Proportions	Anatomy and Physiology Urinary System Circulation (Renal) Electrolyte Regulation Endocrine System Water Balance Liver Functions Chemistry Acid-Base Balance Chemical Equilibrium Solubility Electroysic Reactions Nutrition Dietary Control of Diabetes Mellitus Insulin Balance Physics Hess's Law of Constant Heat Summation Use of Scientific Method	Pathologist Urologist Medical Laboratory Technologist Registered Nurse Dietician	Development of Accuracy in: Observation Differentiation Interpretation of Data Recording Reporting Skills in Psycho-Motor Control Ability to Handle Body Fluids and Learning Reaction of People to Granting of Fluid Samples

OBJECTIVE: The student will demonstrate a knowledge of the dialysis process.

36

ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Construct an apparatus which demonstrates the process of dialysis.	Measurement Solving Equations Lines Communication Discussion Techniques Debating Development of Medical Vocabulary	Anatomy and Physiology Structure and Function of Cells and Chemical Activity of Cells Fluids Hemodialysis Kidney Function Maternal-Fetal Placental Exchange Intrautirive Growth Circulation Microbiology Immunology Chemistry Colloidal Solutions Molecular Movement Radio Activity Psychology Human Development Heredity Adjustment Fears and Anxiety	Dialysis of the Kidney Physicians-Obstetrician Hemotologist Urologist Nurses Medical Laboratory Technicians Pharmacologists Microbiologists X-Ray Technologists Pharmacists Medical Social Worker	Development of accuracy in: Observation Interpretation of Data Following Directions

OBJECTIVE:

36-Page Two ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
		Sociology Effect of Science on Society Physics Fluids Permeability of		

OBJECTIVE: The student will identify the parts of the heart.

37 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Analyze a sheep heart. Record results.	Measurement Solving Equations Communication Development of Medical Vocabulary Technical Writing Scientific Note Taking	Anatomy and Physiology Cellular Structure of: Smooth Muscle Striated Muscle Blood Structure of Chambers of the heart: Circulation Coronary Circulation Physiological Death Chemistry Chemical Composition of Muscle Tissue Chemical Composition of Blood Fluids Solutions Matter Radio Activity Nutrition Weight Control Physics Pressure-Force Electricity-Energy	Cytologists Histologist Hemotologist Medical Laboratory Technologist Respiratory Therapist Cardiac Care Nurse Physician (Cardiologist) Pathologist Medical Illustrator Electrocartographer	Development of Skills in: Observation Differentiation Following Directions Dissection (Psycho-Motor Skills) Identification of Emotional Reactions to: Seeing Blood Considering Human Processes Touching Tissue

OBJECTIVE:

37-Page Two ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
		Physics (Continued) Fluids Work-Conservation of Energy X-Rays Sociology Organization National Heart Association		

OBJECTIVE: The student will determine blood compatibility.

38

ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Draw blood samples and test for type and Rh factor. Record and report results.	Laws of Probability Percentage Square Root Second Degree Equations With Two Variables	Biology Diffusions Chemistry Blood Proteins Physiology Antigen-Antibody Reaction Microbiology Sterile Technique Anatomy-Physiology Placental Exchange Compositions of the blood Physics Permeability of Membranes Nutrition Vitamin K Psychology Heredity Physical Development Sociology Organizations Blood Bank	Medical Technologists Hemotologists Geneticist Infussion Therapists Registered Nurses Pathologists	Skill Development: Ability to Draw Blood Self-Awareness Development: Stand Sight of Blood Work Closely With Another Touch Establish empathetic feelings toward reactions of others to sight of blood and to pain

OBJECTIVE: The student will demonstrate systemic and pulmonary circulation.

39 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Trace a drop of blood as it travels from the left great toe to the right great toe.	Solving Time, Rate and Speed Problems Communication Technical Writing Development of Medical Vocabulary	Anatomy and Physiology Systemic Circulation Pulmonary Circulation Respiration-Gas Exchange Digestion-Absorption of Nutrients Skin-Temperature Regulation Kidney-Filtrations Endocrine Glands Thymus Physics Force Energy Gas Laws Chemistry Gases Diffusion Nutrition Utilization of Nutrients Sociology Organizations Blood Bank	Hemotologist Medical Laboratory Technician Cardiologist Health Educator Medical Illustrator	Development of Accuracy in: Investigation Techniques Recording Reporting Interpretation

OBJECTIVE: The student will monitor his/her vital signs and will establish his/her range of normalcy.

40 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Keep an accurate record of your vital signs daily for a period of not less than three months. Blood Pressure Temperature Pulse Rate Respiration	Graphing Metric System Statistics Ratio Proportion Solving First Degree Algebraic Equations With One Variable Balancing Chemical Equations Communication Technical Writing Development of Medical Vocabulary	Anatomy and Physiology Circulatory System Respiratory System Excretory System Nervous System Physics Measurement Force Speed Conduction Convection Chemistry Chemical Energy Hess's Law of Constant Heat Summation Gas Laws Vaporization Water Oxygen Scientific Method	Registered Nurse Physician Inhalation Therapist Physical Therapist Physical Education Instructor Health Educator	Development of Accuracy in: Observation Interpretation Differentiation Recording Psycho-Motor Skills

OBJECTIVE: The student will identify the delicate chemical balance of body fluids.

41 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Discover the compatibility of three fluids, drugs or solutions which can safely be administered to a patient intravenously. Record and report.	Metric System Measurement Recording Graphing Solving Equations Probability Communication Research Reporting Developing Medical Vocabulary	Anatomy and Physiology Body Fluid Balance Circulation Urinary System Endocrine System Liver Functions Chemistry Acid-Base Balance Compatibility of Solutions Ionization Equations Chemical Equilibrium Physics Measurement Electrolysis Permeability of Membranes Nutrition Sugars Salts Vitamins Minerals Water Nutrient Needs of Body	Pharmacologist Infusion Therapist Cytologist Hemotologist Pathologist Urologist Dietitian Medical Laboratory Technologist Registered Nurse Veterinarian	Development of Skills in Accuracy in: Observation Differentiation Recording Communication Knowledge of need for caution by all medical personnel in the addition of any substance to an I.V. infusion.

OBJECTIVE: The student will demonstrate learned skills and will simulate the activities of health professionals.

42 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Plan, Coordinate and execute a "Heart and Circulation" examination day at your school for all students. Examples of Activities: Check-- Blood Pressure Pulse Blood Type B.P. and Pulse Changes after Exercise Demonstrate-- Dissected Heart Pulmonary Circulation Distribute Educational Information: Anatomy and Physiology of Circulatory System Disease of Circulatory System Relationship of Smoking and heart disease and Weight and heart disease.	Measurement Logistics Budgeting Measurement (Space) Estimates Projections Graphing Communication Expository Writing Research Reporting	Anatomy and Physiology Circulatory System Cardiac Circulation Systemic Circulation Pulmonary Circulation Renal Circulation Hepatic or Partal Circulation The Spleen The Liver Chemistry Fluids Solutions Chemical Change Physics Motion Fluids Force Weight Measurement Sociology Heart Association and other Social Agencies Dedicated to Heart Disease prevention Blood Bank Microbiology Antigen-Antibody Reactions	Hemotologist Medical Laboratory Technologist Respiratory Therapist Physician-Cardiologist Gen. Practice Registered Nurse Cardiac Care Nurse Health Educator Public Health Officer Medical Illustrator	Development of skills in: Organization Supervision Tem Membership Teaching Decision Making Human Relationships

OBJECTIVE: The student will examine the structure of the organs of respiration and will explain the function of each.

43 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Examine a sheep pluck macroscopically and microscopically. Inject air into the lungs. Describe and record results.	Measurement Solving Equations Communication Scientific Note Taking Technical Writing Research Reporting Development of Medical Vocabulary	Anatomy and Physiology Respiratory System Pulmonary Circulation Cellular Structure Tissue Differentiation Hemoglobin Chemistry Oxygen Oxidation Nitrogen Chemical Change Water Vapor Gas Laws Physics Pressure-Negative Positive Scientific Method Sociology Anti-Tuberculosis Society Anti-Emphasema Society and other Social Agencies Dedicated to Elimination of Respiratory Diseases Microbiology Pneumococcus	Pathologist Cytologist Histologist Respiratory Therapist Homotologist X-Ray Technician Physician Registered Nurse Veterinarian Medical Illustrator Environmental Health Officer	Development of Skills in accuracy of: Observation Differentiation Recording Communication Experimentation Understanding of reaction to handling tissue

OBJECTIVE: The student will explain the relationship between pulmonary ventilation and the rate of respiration.

44 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Using the members of your class, study the effect of pulmonary ventilation on respiration rate. Record and report results.	Measurement Metric System Percentage Graphing Statistics Ratio and Proportions Communication Research Reporting Development of Medical Vocabulary Interpretation of Body Language	Anatomy and Physiology Respiratory System Pulmonary Circulation The Brain Hemoglobin Chemistry Oxygen Carbon Dioxide Chemical Changes Gas Laws Physics Pressure-Positive Negative Measurement Sociology Agencies Associated With Preventing Lung Diseases: Anti-Tuberclulosis Anti-Emphasema American Cancer Association	Cardiologist Inhalation Therapist Hemotalogist Neurologist Physician Registered Nurse X-Ray Technician Pediatrician Physical Education Instructor Recreation Therapist Environmental Health Specialist Public Health Officer Health Educator	Development of Skills in Accuracy of: Observation Differentiation Recording Communication Organization Team Membership

OBJECTIVE: The student will demonstrate a knowledge of pulmonary vital capacity.

45 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Construct a spirometer and measure the capacity of your lungs. Record and report results.	Measurement Metric System Ratio and Proportion Volume Area Communication Technical Writing Scientific Note Taking	Anatomy and Physiology Respiratory System Tital Volume Expiratory Reserve Volume Inspiratory Researve Volume Residual Volume Vital Capacity Pulmonary Circulation Chemistry Oxygen Physical Changes Gas Laws Physics Measurement Speed Force Gas Laws Volume Sociology Social Agencies Dedicated to Fight Lung Diseases	Inhalation Therapist Health Educator Physician Public Health Officer X-Ray Technician Registered Nurse Physical Educator Recreation Therapist Health Educator Environmentalist	Development of Skills in Accuracy in: Observation Differentiation Recording Communication Organization

OBJECTIVE: The student will demonstrate the physical contaminants present in tobacco smoke.

ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Construct, operate, and demonstrate a smoking machine.	Basic Measurement Functions Coefficients First Degree Algebraic Equations with One Unknown Percentage International Metric System of Measurement	Anatomy and Physiology Respiratory System Pulmonary Circulation Effects of Oxygen Deprivation on Cells of the Body Respiratory Diseases Mutation of Cells Due to Foreign Matter Fetal Development Physics Permeability of Tissue Gas Laws Principle of Avogadro Boyle's Law Charles' Law Ideal Gas Law Dalton's Law of Partial Pressure Measurement Pressure-Barometric Temperature Chemistry Chemical Composition of Air-Electrolyte Balance Cellular Chemistry Blood Gases	Inhalation Therapists Cytologists Hystologists Medical Laboratory Technician Radiologic Technician Radiologics Physician-Medical Surgical Pathologist Mortician Nurse (Intensive Care) Environmentalist	Awareness of Effects of Physical Results of Social and Psychological Behavior Development of skills in: Observation Demonstration Communication

OBJECTIVE: The student will demonstrate the emergency care for the prevention of death from choking.

47 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Learn and demonstrate to ten people the "Heimlich Maneuver" emergency treatment for food choking. Record and report results. See the following page.	Measurement Volume Area Communication Presentation Interpretation of Body Language Discussion Techniques	Sociology American Red Cross First Aid Procedures Anatomy and Physiology Respiratory System Tracks Digestive System Regulation Nervous System Effect of Alcohol on Muscle Control Physics Pressure Volume Gas Laws Chemistry Composition of Matter Gas Laws	Inhalation Therapist Emergency Care Specialist Physician Registered Nurse Health Educator	Development of Skills in: Observation Differentiation Ability to Perform Under Pressure

OBJECTIVE: The student will evaluate the condition of his/her local atmospheric environment.

48 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Study the air pollutants in your local atmosphere and compare these conditions with Governmental Standards. Record and report results.	Measurement Ratio and Proportion Percentage Statistics Solving Chemical Equations Metric System	<u>Anatomy and Physiology</u> Respiratory System <u>Sociology</u> Effect of Environmental Conditions on the Social Needs of the Population <u>Nutrition</u> Present and Future Food Supplies <u>Chemistry</u> Oxygen Chemical Equations Gases Complex Ions Sulfur Carbon Solving for Unknown <u>Physics</u> Heat-Temperature Kelvin Temperature Scale Emission of Radiation Scientific Notation Analysis	Inhalation Therapist Physician Public Health Officer Environmental Health Specialist Community Health Nurse Industrial Nurse	Development of Skills and Accuracy in: Organization Research Methods Observation Communication Differentiation Following Directions

OBJECTIVE: The student will explain physiological responses to emotional stress.

49 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Design, construct and demonstrate a simple lie detector machine. Record and report the results.	Measurement Solving Equations Metric System Area Ratio and Proportions Graphing Communication Technical Writing Presentation Questioning Techniques Interpretation of Body Language	Anatomy and Physiology Circulation Blood Pressure Pulse Respiration Rate of Skin Response Perspiration Phonations Vision Pupil Reflex Endocrine System Adrenal Glands Nervous System Afferent and Efferent Neural Pathways Psychology Effect of Emotional Reactions on Physical Response Sociology Effect of Science on Society The Socialization Process Chemistry Chemical Changes Catalysts	Medical Psychologist Psychiatrist Physiologist Legal Medical Specialist Sociologist Medical Research Specialist Health Educator	Development of Skills in: Organization Demonstration Accuracy Research Methods Differentiation Communication Understanding of the Effects of Stress on Physical Responses

OBJECTIVE:

49-Page Two ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
		Physics Heat-Temperature Electricity Electrical Energy		

OBJECTIVE: The student will evaluate differing solutions to a common peer group health problem.

ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Survey a minimum of 100 students in your area to determine the most effective means of acne control used by each. Record and report.	Measurement Solving Equations Percentage Statistics Ratio and Proportions Probability Communication Research Reporting Questioning Techniques Listening	Anatomy and Physiology The Skin-Structure Function Care of Nutrition Dietary Control of Infections Microbiology Bacteria-Growth and Control of Research Methods Sociology Development of Personality Peer Pressure Psychology Effect of Physical Defects on Personality Development of the Adolescent	Dermotologists Pediatricians Health Educators Dietitians Adolescent Psychologist Microbiologists Histologist Pharmacologist	Development of Accuracy in: Reporting Observation Communication Research Methods Empathetic Understanding of Others

OBJECTIVE: The student will explain how scientific discoveries are related and applied to medical treatment.

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ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Discover, describe and report the use of the Laser in the treatment of burn.	Measurement Metric System Area Solving Equations Communication Expository Writing	Anatomy and Physiology The Skin-Structure Function Body Fluid Balance First Aid Treatment for Shock Chemistry Electrolytic Reactions Physics The Modern Laser Microbiology Control of Infection Psychology Emotional Needs of the Traumatized Effect of Disfigurement on Growth and Development Effect of Long-Term Medical Care on Personality Formation Sociology Providing Care for Long-Term Illness	Dermatologists Trauma Care Nurse and Physicians Reconstructive Surgeon Biophysical Medicine Specialists Pediatricians Medical Social Worker Hospital Teachers Occupational Therapists Physical Therapists Recreational Therapists Music Therapist	Development of Accuracy in: Research Methods Communication Understanding of Special Needs of Severly Traumatized Patients and Long-Term Care Patients

OBJECTIVE: The student will explain the digestive process and will identify structure and function of the organs involved.

52 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Trace the route and changes which occur to a peanut butter sandwich and a glass of milk as they travel through the digestive system. Record and report.	Measurement Time and Motion Problem Solving Solving Equations Communication Research Reporting Development of Medical Vocabulary	Anatomy and Physiology Structure and Function of Organs of Digestion: Teeth Tongue Esophagus Stomach Liver Gall Bladder Pancreas Small Intestine Large Intestine Excretory System Lungs Skin Kidneys Circulatory System Endocrine System Islets of Langerhans Physics Measurement Speed Force Heat Motion Fluid Energy Weight	Dietitian Dental Hygienists Medical Technologist Dentists Medical Illustrator Medical Secretary Medical Writer	Development of Skills in: Organization Recording Reporting Interpretation of Data

OBJECTIVE:

52-Page Two ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
		Nutrition Composition of Food Nutritional Needs of the Body Chemistry Synthesis of Proteins, Fats and Carbohydrates Enzymes Catalytic Agents		

OBJECTIVE: The student will determine the dietary needs of differing individuals.

53 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Plan a diet which will meet the minimum daily nutritional requirements for the following: -An Infant -A child of age ten weighing 56 pounds, 4 feet in height. -A young adult female weighing 118 pounds 5'7" in height. -An 80 year old man, weighing 140 pounds, 5'9" in height.	Calculation of: Surface Area Problems Conversion of Calories Ratio and Proportion Solving Equations Metric System Communication Research Regarding Development of Medical Vocabulary	Sociology Food Needs of Differing Groups in the Community Food Needs of Total Population Nutrition Basic Food Requirements of the Body Special Body Needs Caloric Content of Food Caloric Requirements of the Body Developmental Requirements of the Body Chemistry Chemical Changes in Energy Formation Chemical Composition of Food Physics Temperature Heat (Calories) Energy	Dietitian Public Health Nurse Physician Health Educator Medical Social Worker Pediatrician Dentist Dental Hygienists	Development of Empathy Toward Different Age Groups Development of Accuracy in Research Methods Development Astuteness in Observation

OBJECTIVE: The student will explain the effect of the use of alcohol upon physical function.

54 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Determine the amount of alcohol which can safely be consumed by a 180 pound male in a six hour period. Report the results.	Graphing: Time-Rate Calculation Ratio-Proportion Solving Equations	Anatomy and Physiology Cellular Function Nervous System The Brain Motor Control Defects of: Vision Balance Digestive System Vomiting Absorption of Nutrients Liver Function The Skin Excretion Respiratory System Excretion Urinary System Excretion Chemistry Oxidation Alcohol Physics Heat Caloric Energy	Physician Dietition Medical Social Worker Psychiatrist Psychologist Registered Nurse Rehabilitation Specialist Occupational Therapist Public Health Officer	Development of Accuracy in: Observation Reporting Recording Research Methods Development of understanding of Peer Pressure

OBJECTIVE:

54-Page Two ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
		Nutrition Energy Metabolism Nutritional Needs of the Body Weight Control Effects of Dietary Deficiencies Psychology Motivation Attitude Adjustment Behavior Disorders Sociology Organizations Alcoholics Anonymous Effect of Alcoholic Behavior in the Family Effect of Alcoholic in Economy		

OBJECTIVE: The student will demonstrate the effect of dietary deficiencies on growth and development.

55

ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Devise an experiment using either white rats or baby chicks to demonstrate the effect of a diet deficient in one of the essential vitamins. Record and report results.	Graphing Calculations Metric System Statistics Measurement Communication Research Reporting	Psychology Physiological Motivation Physical Maturation Conditioning Disorders of Organic Origin. Sociology Relative Deprivation Scarcity-Abundance The Culture of Poverty Economic Development Community Eclipse Social Moments Biology Cellular Needs of Animals for Proper Growth and Development Nutrition Vitamin Content of Foods Function of Vitamins Chemistry Conversions of Vitamins Chemical Changes in Cells	Dietitian Veterinarian Physiologist Pediatrician Public Health Educator Pathologist Medical Laboratory Technologist Micro Biologist Child Psychologist Medical Social Worker	Development of Accuracy in: Observation Differentiation Recording and Reporting Psycho-Motor Skills Development of Valid Research Techniques Development of Understanding of the Nuturing Needs of Living Things

OBJECTIVE:

55-Page Two ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
		Physics Measurement Weight Microbiology Disease Defenses of the Body		

OBJECTIVE: The student will determine the vitamin content of various food sources.

56 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Determine the vitamin C (Ascorbic Acid) content of a fresh orange, grapefruit, lemon and lime. Compare and summarize the results.	Balancing Equations Ratio and Preparation Graphing Communication Research Reporting	Chemistry Analysis of Known Solutions Nutrition Best Food Sources of Vitamin C Function of Vitamin C Effect of Dietary Deficiencies Foods as Sources of Nutrients Improving the Quality of the Human Diet Anatomy and Physiology Digestive System Utilization of Nutrients Microbiology Disease Prevention Physics Uncertainties and Errors in Measurement. Scientific Notation Unit Analysis	Dietitian Pharmacist Laboratory Technologist Health Educator Bio-Chemist	Development of Skills in accuracy of observation and recording data Skills in Research Methods Skills in Laboratory Techniques

OBJECTIVE:

56-Page Two ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
		Sociology Social Agencies Public Health Department Relative Deprivation Scarcity-Abundance The Culture of Poverty		

OBJECTIVE: The student will demonstrate the chemical structure of carbohydrates.

57 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Using appropriate material construct a model of the structural formula for glucose and fructose. Present to the class.	Elementary Math Geometry Communication Presentations Demonstrations Development of Medical Vocabulary	Chemistry Compounds Physics Atomic Structure Nutrition Types of Sugars Physiology Chemical Digestion	Dietician Pharmacist	Develop Ability to Discriminate Between Similarities Develop Skills in: Accuracy Observation Psycho-Motor Performance Following Directions

OBJECTIVE: The student will identify acid-base solutions and will determine pH of the solutions.

58 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Determine the pH of: a Blood Sample a Urine Sample a Saliva Sample a Sample of Tap Water a Sample of Milk a Sample of Orange Juice Record results.	Elementary Math Logarithmic Measurement Communication Scientific Notation Developing Medical Vocabulary	Chemistry Hydrogen Ion Concentration Acid-Base Titration Anatomy and Physiology The Blood The Kidneys The Digestive System Sociology Environmental Protection Agency Industrial Society Nutrition Foods-Composition Digestion Microbiology Bacterial Safety Levels in Water Supply Disease Prevention	Medical Laboratory Technologist Hemotologist Urologist Dietitian Public Health Officer Bio-Chemist	Development of Accuracy in: Observation Differentiation of Similarities Interpretation of Data Following Directions Recording Psycho-Motor Skills

OBJECTIVE: The student will determine the nutritional needs of a food producing animal.

59 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Calculate the type and the amount of pasture which would be needed to sustain one dairy cow for one year. Record and report.	Measurement Solving Equations Area Ratio and Proportion Communication Research Reporting Discussion Techniques Questioning Techniques	Sociology Animal Protection Agencies Anatomy and Physiology Digestion Metabolism Growth and Development Nutrition Essential: Nutrients Vitamins Minerals Protein Fat Carbohydrates Water Chemistry Composition of Matter Changes in Matter Chemical Composition	Animal Care Technician Veterinarian Animal Husbandry Dietician	Development of Skills in: Scientific Methods Observation Interpretation of Data Research Methods

OBJECTIVE: The student will explain the chemical controls on physical function, growth and development.

60 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Devise an experiment which will demonstrate the effects of one of the hormones on some living form. Describe and record the results. Examples: Effects of: Thyroxine on developing chick embryos. Thyroxin on the metamorphasis of frogs. Iodine on the metamorphasis of frogs. Insulin on rat growth.	Measurement Graphing Percentage Ratio-Proportions Solving Equations Communication Technical Writing Scientific Notations Development of Medical Vocabularies	Sociology New Baby Clinics Drug Rehabilitation Agencies Psychology Human Development Anatomy and Physiology Endocrine System Structure-Function Reproduction Comparative Anatomy Digestive System Chemistry Bio-Chemistry Radio-Active Isotopes Chemical Reactions Nutrition Utilization of Nutrients Iodine Effects of Dietary Deficiencies	Endocrinologist Obstetrician Pediatrician Geneticist Medical Laboratory Technologist Pathologist Animal Care Technician Veterinarian Pharmacist	Development of Accuracy in: Observation Differentiation Recording Interpretation Research Methods

OBJECTIVE:

60-Page Two ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
		Physics Emission of Radiation Uncertainties and Errors in Measurement Scientific Notation		

OBJECTIVE: The student will examine the gross anatomy of a fetal pig and will explain the similarities and differences of it and human anatomy.

61 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Dissect a fetal pig. Compare to human anatomy. Record and report findings.	Measurement Metric System Communication Technical Writing Development of Medical Vocabulary	Anatomy and Physiology Comparative Anatomy Reproductive System Gross Anatomy of: Respiratory System Circulatory System Digestive System Skeletal System Muscular System Urinary System Nervous System Sense Organs Endocrine System	Pathologist Obstetrician Animal Care Technician Pediatrician Veterinarian	Development of Accuracy in: Observation Differentiation Recording Reporting Psycho-Motor Skills Ability to Touch Animal Tissue

OBJECTIVE: The student will demonstrate the interrelationship between the endocrine system and the reproductive system.

62 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Devise a model to demonstrate the menstrual cycle. Show the interrelationship between the endocrine system and the reproductive system.	Measurement Geometric Designs Metric System Communication Presentation Development of Medical Vocabulary	Sociology Sex Role Differentiation Planned Parenthood Agency	Pathologist Medical Laboratory Technologist Endocrinologist Geneticist Obstetrician Health Educator	Development of Accuracy in: Observations Differentiation Recording Reporting Psycho-Motor Skills

OBJECTIVE: The student will observe embryonic development and will properly record the results.

63 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Devise an experiment using fertile chicken eggs to: 1. Study embryonic development 2. Study effects of thyroxin on the developing embryo Record and report results.	Measurement Graphing Balancing Chemical Equations Communication Scientific Notation Research Reporting Development of Medical Vocabulary	Psychology Physical Development Sociology Federal Drug Administration Prenatal Health Clinics Anatomy and Physiology Reproductive System Endocrine System Nutrition Nutrient Needs of the Developing Embryo Chemistry Catalyst Chemical Equilibrium	Endocrinologist Obstetrician Animal Care Technician Veterinarian Health Educator Bio-Chemist Pharmacologist	Developing Skills in Accuracy of: Observation Interpretation Differentiation Recording Reporting Development of Psycho-Motor Skills

OBJECTIVE: The student will explain the adverse effects of drugs on fetal development

64 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Discover, record and report the latest research on the effect of maternal alcoholism on the developing human fetus.	Probability Percentage Ratio-Proportion	Anatomy and Physiology Reproduction Fetal Development Placental Exchange Digestive System Absorption of Alcohol Nutrition Food Habits Nutritional Needs of Infant Nutrition in Pregnancy Chemistry Chemical Bonds Hydrocarbons Hydrocarbon Substitution Products Communication Research Reporting Sociology Conforming Behavior Family Disorganization Alcoholics Anonymous Sex Role Differentiation	Pediatrician Obstetrician Psychoiatrist Bio-Chemist Public Health Worker Medical Social Worker Registered Nurse Pharmacologist Health Educator	Development of Skills in: Research Methods Accuracy in Interpretation of Data Development of Empathy Toward Alcoholism

OBJECTIVE:

64-Page Two ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
		Psychology Societal Attitudes Frustrations Conflict Defense Mechanisms Withdrawal Fears and Anxiety Physical Maturation Character Disorders		

OBJECTIVE: The student will be able to simulate the activities of professional health personnel.

ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Conduct a body safety lane check day for members of your school. Distribute educational and explanatory material. This might be a good activity to use in conjunction with the observation of a school safety week.	Estimation Logistics Accounting Communication Research Reporting Technical Writing Development of Medical Vocabulary	Anatomy and Physiology Circulatory System Blood Pressure (oil pressure) Pulse (fuel pump) Blood Type (oil grade) Massage (finish) Temperature (thermostat) Vision (head lights) Kidneys (filter or emissions control) Weight (load station) Brain-Nervous System (electrical System) Anatomical Model Display (spare parts) Microbiology Sterile Technique Sociology Health Care Agencies Public Health Organizations	Medical Technologist Pathologist Physician Registered Nurse Public Health Educator Ophthalmologist Dietician Physical Therapist Medical Illustrator Medical Secretary Medical Records Librarian	Development of insight into specific career activities Development of Accuracy in: Psycho-Motor Skills Organization Execution of Directions Directing Others Teaching Health Related Information Working Cooperatively in a Team

OBJECTIVE: The student will explain the relationship between environmental pollutants and the incidence of various types of cancer.

ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Summarize the results discovered regarding cancer patterns in your locality using the new "Atlas of Cancer Mortality" (National Cancer Institute) Report your findings.	Percentage Ratio-Proportion Communication Research Reporting Development of Medical Vocabulary	Anatomy and Physiology Respiratory System Digestive System Stomach Liver Intestines Pancreas Skeletal System Bone Circulatory System Blood Diseases Lymphatic System Skin Diseases of Urinary System Bladder Endocrine System Reproductive System Death and Dying Immunology Chemistry Radioactivity Physics Emission of Radiation	Radiologist Medical Records Librarian Medical Secretary Pathologist Public Health Disease Investigator Virologist Immunologist Bio-Chemist Pharmacist Medical Research Specialist	Development of Accuracy in: Interpretation of Data Research Methods Insight into the Need for Keeping Complete Records for Present and Future Medical Discoveries.

OBJECTIVE:

66-Page Two ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
		Sociology Environmental Protection Agency American Cancer Association Industrialized Society		

OBJECTIVE: The student will be able to demonstrate an awareness of himself or herself by being able to identify his or her physical, emotional, social, academic status.

ACTIVITY	CONTENT			
	COMMUNICATIONS	PSYCHOLOGY	PERSONAL DEVELOPMENT	CONTENT IDEAS
Devise and matain a personal history notebook.	Organization of Information Effective Written Presentation of Information	Human Development Personality Formation Personality Theories Personality Measurement Motivation Physiological Emotional Social Learning Attitudes-Sociality Psychological Tests Validity of Measurement Adjustment Sociology The Socialization Process Conforming Behavior Autonomous Behavior The Family Sex-Role Differentiation Age-Change in Age Roles Social Mobility Intergroup Relations Cultural Pluralism and Integration Achievement Syndrome	Self-Awareness Inventory Recognition of Inter-Relationship of Physical Development, Emotional Stability and Social Adjustment Development of Techniques for Self-Evaluation and Understanding	Record of Birth Record of Physical Development Height Pattern Weight Pattern Body Type Sexual Maturity Illness Record of Family Members and Relationships Record of Family Residences Record of Interest Patterns Record of School Performance Record of Friendships Record of Group Memberships Record of Test Results Interest Atptitude Achievement Motor Skills Record of Cultural Heritage

OBJECTIVE: The student will observe, record, and report the preparation for and the work of health career professionals.

68 ACTIVITY	CONTENT			
	COMMUNICATION	RESOURCES	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Devise and maintain a health careers notebook.	Organization of Materials Written Composition Outlining Summarizing Sequential Placement of Relevant Concepts Effective Presentation Of Information	Dictionary of: Occupational Titles Occupational Briefs etc. Career Audio-Visual Materials: Filmstrips Films, 16MM Records Newspaper "Want Ad" Section Classroom Speakers Field Trips to Health Agencies Individual Visitation With Health Professionals and Health Preparatory Institutions Career Placement Experience	Record of Each Activity or Experience Associated with as many Health Careers as Possible: 1. Essential Work of Career. 2. Job Opportunities of Career. 3. Working Conditions of Career. 4. Educational Requirements of Career. 5. Special Requirements of Career. 6. Contact Person Associated with Career.	Comparison of Personal Characteristics with Those of Career Professionals. Expression of Personal Feelings Regarding Career.

OBJECTIVE: The student will demonstrate the ability to perform at a high level of proficiency in the areas of accuracy in observation, communication, interpretation of data, differentiations of similarities and in following directions.

69 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Spend 2 hours in a park or city gathering square. Observe all forms of life. Observe activities of each form of life. Record observations.	Tabulation Communication Scientific Notetaking Listening Interpretation of Body Language	Technique of Scientific Observations and Notations. Nutrition Dietary Habits of Man and Animals Chemistry Photosynthesis in Plants Nitrogen Cycle Physics Light Sound Force Ecology Grass Air Water Pollution Effect of Pollution on Plant Life Psychology Behavior of Man in Group Situations	Psychologist Sociologist Recreation Therapist Physical Therapist Occupational Therapist Dietician Veterinarian	Skills in: Observation Communication Interpretation of Data Following Directions Differentiations Self-Awareness Enjoy Associations with Plants, Animals and People. Care about Effect of Natural Elements and Social design on Plants, Animals, and People.

OBJECTIVE:

69-Page Two ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
		Anatomy and Psysiology Skeletal and Muscular Movements of Man Respiratory System Digestive System Excretory System Sociology Stratification Systems Interaction Between Age, Sex and Ethnic Groups		

OBJECTIVE: The student will demonstrate self-awareness by being able to identify his/her ability to empathize with others.

70 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Conduct a survey of teenage attitudes toward parents. Report Results.	Basic Statistics Mean Mode Median Standard Deviation Communication Research Reporting Change Collective Behavior Social Movements Theories of Change	Use of Scientific Method in Data Collection and Problem Solving Psychological Research Methods Psychology Sociality Attitude Formation Adjustments Sociology The Family Socialization of the Child Family Disorganization Personal Freedom	Medical Social Worker Psychiatrist Pediatrician General Practice Physician School Nurse Mental Health Nurse Health Educator	Compare Personal Attitudes with Attitudes of Peer Group Observe that Personal Frustrations are Not Unique by Developmentally Normal

OBJECTIVE: The student will identify the needs of the handicapped.

71 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Spend one day in a wheelchair. Describe how your environment had to be altered to accommodate your handicap.	Estimation Measurement Speed-Distance Ratios Communication Expository Writing	Anatomy and Physiology Skeletal System Muscular System Nervous System Physics Speed Motion Measurement Momentum Psychology Adjustment Frustration Defense Mechanisms Fear and Anxiety Sociology Community Agencies Rehabilitation Clinics Associations for the Handicapped	Physical Therapist Occupational Therapist Recreational Therapist Music Therapist Health Educator Orthopedic Nurse Orthopedic Physician	Development of Ability to Empathize with Physical Limitations Ability to Create Alternative Procedur for Meeting Physical Emotional and Social Needs

OBJECTIVE: The student will analyze the health service needs of children.

72 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Design a health clinic for children. Indicate the types of health personnel needed. Report results.	Measurement, Cubic Ratio-Proportion Estimation Area Communication Technical Writing Research Reporting Development of Medical Vocabulary	Anatomy and Physiology Reproductive System Birth Genetics Microbiology Immunology Sterilization Techniques Disease Prevention Nutrition Food Habits Weight Control Nutrition Needs of Infants, Children and Youth Improving the Quality of the Human Diet Physics Measurement Heat Electricity Sociology The Individual The Family Social Category System Ethnic Groups	Pediatrician Pediatric Nurse Public Health Educator Dietitian Medical Social Worker Psychologist Psychiatrist Occupational Therapist Physical Therapist Recreational Therapist Music Therapist	Development of Skills in: Observation Research Methods Organization Creativitiy Determining Special Needs of Special People

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OBJECTIVE:

72-Page Two ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
		Psychology Human Development Heredity Physical Matruation Perceptual Development Language Development Concept and Cognitive Development Development of Intelligence Development of Social Behavior Personality Formation Individuality		

OBJECTIVE: The student will determine the particular medical needs of the aged.

73 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Calculate the average cost of the care of an aged person in a nursing home for one week. Report results.	Estimation Averaging Division Communication Technical Reporting Development of Medical Vocabulary	Anatomy and Physiology Effects of Exercise on Muscle Tissue The Brain Defects of Vision Balance Auditory Defects Constipation Defects of Digestive System Defects of Circulatory System The Skin-Care of Microbiology Disease Prevention Nutrition Nutrition Needs of Seniority Improving the Quality of the Human Diet	Geriatric Nurse Physician Recreational Therapist Occupational Therapist Physical Therapist Dietitian Pharmacist Medical Social Worker	Development of Skills in: Observation Interpretation of Data Relating Financial Cos of Social Problems Developing Empathy Toward the Aged

OBJECTIVE:

73-Page Two ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
		Sociology Age-Changes in Age Roles Relative Deprivation Alienation Scarcity-Abundance Family Disorganization Culture of Poverty Community Eclipse Community Development		

OBJECTIVE: The student will be able to simulate the role of a health career specialist.

74 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Create a game to: 1. Distract a four year old being prepared for surgery 2. Stimulate an elderly man to become interested in his surroundings 3. Use an many parts of the body as possible	Measurement Estimation Geometric Figures Lines Circles Triangles Squares	<u>Anatomy and Physiology</u> Skeletal System Muscular System Nervous System The Eye Movements Balance Respiratory System Circulatory System <u>Physics</u> Energy Motion Light Waves <u>Psychology</u> Motivation Physiological Emotional Social Learning Motor Skill Learning Attitude-Sociality Attention Getting Mechanisms Persuasion <u>Sociology</u> Age-Changes in Age Roles	Surgical Nurse Physician Physical Therpist Recreation Therapist Occupational Therapist Music Therapist Medical Social Worker Health Educator	Development of Skills in: Interpersonal Relations Creativity Assessing the Needs of Others Developing an Empathy to the Needs of Others

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OBJECTIVE: The student will explain the social, physical and psychological needs of the elderly.

75 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Interview 10 senior citizens. Have your sample include: 1. Those Living with Their Children 2. Those Living Alone 3. Those Living in a Rest or Nursing Home Record and report your discoveries.	Ratio-Proportions Percentage Probability Square Root Logarithm Communication Research Reporting Listening Interpretation of Body Language Questioning Techniques	Sociology Social Category System Age-Change in Age Roles The Family Family Disorganization Comparing Behavior Autonomus Behavior Scarcity-Abundance Alienation Preindustrial Societies Industrial Societies Psychology Neuroses Psychoses Motivation The Healthy Personality Attitudes Nutrition Nutrition Needs of Seniority Improving the Quality of the Human Diet	Geriatric Nurse Physician Occupational Therapist Recreation Therapist Physical Therapist Medical Social Worker Dietitian Music Therapist	Development of Skills in: Observation Interpretation of Data Research Methods Development of Empathy to the Needs of the Elderly

OBJECTIVE: The student will know his/her community's health resources.

76 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Survey your community to determine the health resources available to its citizens. Determine if any essential health needs are not being met. Report results.	Tabulation Communication Research Reporting Development of Medical Vocabulary Questioning Techniques Discussion Techniques	Psychology Physical Development Development of Social Behavior Structure and Dynamic of Groups Work of Psychologists Microbiology Disease Prevention Immunology Sociology Organizations Industrial Society The Community Social Movements	Social Worker Public Health Officer Physician Registered Nurse Hospital Specialists Mental Health Specialists Recreation Therapists Rehabilitation Therapists Pharmacists Psychologist	Development of awareness of health needs of members of his/her community. Ability to assess accurately needed resources Ability to communicate effectively with others

OBJECTIVE: The Student will be able to explain human interactions using concepts from Transactional Analysis.

77 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
Discover and practice the concepts of Transactional Analysis with a group within your school. Record results. Introduction to Transactional Analysis by David S. Abbey and Ronald H. T. Owston published by Human Development Institute.	Research Reporting Development of Medical Vocabulary Formal Presentations Discussion Techniques Questioning Techniques Debating Listening Interpretation of Body Language	Psychology and Sociology Transactional Analysis Stroking Time Structuring Withdrawal Rituals Pastimes Activities Games Intimacy Ego States Parent Adult Child Transactions Complementary Crossed Social Message Psychological Message	Psychologist Sociologist Social Worker Mental Health Specialist Health Educator Psychiatrist	Development of Self-Awareness and Need to Understand the Interactions which Take Place as Individuals Work, Live and Associate with Each Other.

OBJECTIVE: The student will be able to identify and explain his/her value system.

78 ACTIVITY	CONTENT			
	MATHEMATICS	SCIENCE	CAREER INVESTIGATION	PERSONAL DEVELOPMENT
In a group of your peers, practice value clarification strategies. Source Material Values Clarification by Sidney B. Simon, Leland W. Home, and Howard Kirchenbaum. Hart Publishing Company, Incorporated, New York.	Development of Medical Vocabulary Formal Presentations Discussion Techniques Questioning Techniques Debating Listening Interpretation of Body Language	Psychology and Sociology Prizing Ones Beliefs and Behaviors Publicly Affirming Beliefs Choosing From Alternatives Choosing After Consideration of Consequences Choosing Freely Acting on One's Beliefs Acting with a Pattern, Consistency and Repetition	Psychologist Sociologist Social Worker Health Educator Psychiatrist Mental Health Specialist	The Development of a Strong Affirmable Set of Values. The Development of an Understanding of Commonly Held Beliefs The Development of an Understanding of Individual Difference